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Philadelphia Paper Market Outlook Brighter

Inquiries for Various Standard Grades of Fine and Wrapping Paper Indicate Broader Purchasing in Near Future—Mill Agents Experience Improved Request for Bond and Writing Papers—Active Demand Reported for Summer Specialties—Pennsylvania Paper Manufacturers Continue to Operate on Part Time Schedule.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 30, 1932—Though the usual summer quietus prevails in the Quaker City industry there is a brighter aspect to the paper market in the inquiries that are now made for future deliveries. In both fine and wrapping paper divisions the trade is looking forward to brisker business as inquiries would indicate broader buying with the advent of Fall. Wholesalers of papers state that demands are growing among consumers of book papers in the printing and publishing trades as prices show steadiness after a general reduction made in June. Mill agents, too, find an improvement in bonds, writings and card boards. The continued hot weather creates an active demand for specialties, such as drinking cups, sanitary supplies, soda fountain goods and outing paper. Wrapping papers are steady. Paper manufacturers in the Philadelphia district continue to operate on part time with orders coming slowly from distributors, as the trade awaits further developments in business generally upon which to base their Fall stocking. All grades of paper stock are dull, with prices at rock bottoms of the past month. There are a few mill inquiries for the better grades but the cheaper lines continue to pile up in a lagging market.

Paper and Bag Institute Chartered

Following the granting of a charter to the former Philadelphia Paper Jobbers' Association, it was announced last Thursday at the meeting of that organization held in the Elks Club, that the name has been changed to the Paper and Bag Institute of Philadelphia, with the charter rights under the laws of Pennsylvania. The meeting, which was the first held under the summer schedule of monthly sessions, was attended by 25 representatives of paper and bag jobbing houses in this territory. President Nathan D. Isen presided. Officials elected under the new charter are: President, Nathan D. Isen, Enterprise Paper Company; vice-president, Ellwood J. Basler; treasurer, Charles Resnick, L. Resnick & Sons, and secretary, Lewis Gerber, Enterprise Paper Company. These officials, with the following directors, were re-elected;—Frank Dubin, Dubin Paper Company; J. T. Witte, Witte Paper Company; B. Kessler, B. Magid, Jack Zacher, Atlas Paper Company and Myer Goldman. These officers were formerly elected to the Philadelphia Paper Jobbers' Association. Plans for the outing to be held in August were discussed by the outing committee as follows;—Samuel Krepow, Samuel Feldman and Lewis Gerber, Enterprise Paper Company, George Hunter, E. J. Basler Company, and Russel Jeffers, Witte Paper Company. Definite plans will be announced by the outing committee shortly.

Credit Bureau Formed

With the selection of a definite system for the interchange of credit information, the Paper and Bag Institute of Philadelphia has announced the formation of a credit bureau under supervision of the law firm of Levinson & Haas and Manager E. Lewis, with headquarters in the North American Building. The organization of the credit bureau has long been in process of formation and since the group of paper jobbers organized last Spring, has been taken up for discussion at the semi-monthly meetings with careful survey of the needs of the body and inspection of the various systems which were held under the scrutiny of the credit committee, with a view to providing suitable credit interchange for the industry. Charles Resnick, L. Resnick & Sons, is chairman of the credit bureau committee.

Quaker City Paper Co. Reorganized

Following the death of the late Joseph B. Mitchell, head of the Quaker City Paper Company, 303-311 Vine street, there was held an election of officers and directors of the company. Announcement of the election of W. Brelsford Killhour to the presidency of the company was made last week. He succeeds Mr. Mitchell, who died April 17 and had long been associated with the late head of the firm. Mr. Killhour has been connected with the firm for eleven years, first as salesman and later as vice-president and sales manager. The office of vice-president left vacant was filled by election of Howard W. Lee, who is also director of the company. Mr. Lee comes to the company with a wide experience in merchandising and wholesale distribution. The officers and directors of the company now are:—President W. Brelsford Killhour; treasurer, W. F. Killhour; assistant treasurer, George J. Geiss; vice-president, Lewis F. Elliott; vice-president, Howard W. Lee; and secretary, Robert S. Reed. The Quaker City Company was founded in 1905 by the late

(Continued on page 24)

Boston Paper Market Continues Fairly Active

Slight Gain in Volume of Orders for Various Standard Grades of Paper Reported—Bonds and Ledgers In Moderate Request—While Inquiries for Wrapping Paper Are Fairly Numerous, Quotations On No. 2 Kraft Are Slightly Easier.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 1, 1932—The better feeling continues in the wholesale paper market in and around the Hub. Inquiries have been numerous, with a fairly good actual business in most cases and it is estimated that there has been at least a slight gain in the volume of orders. There is a moderate demand for bonds and ledgers. Interest in papers for direct mail advertising in increasing. More inquiry for wrapping paper has developed, although as a result of competition No. 2 kraft has been marked down from .03¼ @ .03½ to .03 @ .03¼. There is somewhat more activity in papers for textile purposes. Seasonal specialties, such as drinking cups, paper board dishes, etc., are moving fairly well. A moderate upturn, with a distinctly more cheerful sentiment, is noted in the box board market.

In some quarters, there has been a little more activity in a few grades in the paper stock market. According to reports in the trade, the price is stiffening and it is felt that this action will naturally strengthen the value of waste paper. In the last few days a movement has developed in No. 2 soft white shavings, the price of which has advanced to 1.40. This grade could be obtained for 1.32½ the previous week. It is stated that a mill wants to buy 5,000 pounds, but is unable to secure this amount, at least at lower than 1.40. Some orders have been placed for gunny bagging which has a stronger tendency. There is not so much manila rope on hand as some of the boats which ordinarily bring the foreign grade to this country have been taken off.

A. M. Burr with Badger Paper Mills

Arthur M. Burr, 10 High street, has become New England representative of the Badger Paper Mills, Inc., and his appointment has been announced by that company. Mr. Burr, who is widely known in the New England trade, is an experienced paper man commanding the respect and confidence of all. He will handle all products of the concern except Ta-Non-Ka Bond, of which Knight, Allen & Clark are representatives. The Badger company controls every step in the process of manufacture of their lines from log to finished product, and is able to offer some of the most attractive values in this period of high quality and low prices. The concern makes sulphite bonds, as well as mimeograph, offset and drug bonds, posting ledger, M. G. manifold, typewriting paper, memo pads, dry proofing, bakers' wrap, various waxed papers, household rolls, ice cream liners and other lines. A handsome illustrated descriptive catalog is issued. The company has excellent shipping facilities to all points.

Arnold-Roberts to Distribute Aerial Papers

The Arnold-Roberts Company has been appointed distributor of Aerial Papers, manufactured by the District of Columbia Paper Manufacturing Company, Washington, D. C. These papers have a modern finish, with distinctive pattern, bright colors, combined with the softness of pastel shades, sturdy strength and feather deckle edge. They are the same on both sides. Excellent envelopes may be made from the book or cover weights. An unusual and picturesque sample book is issued, which includes sizes and weights.

News of the Trade

The Royal Card and Paper Company, of New York City, through its Boston representative, Henry L. Goodman, is distributing sample swatches of new box papers, including some new patterns in decorative flint papers.

Harry Ellis, head of the wrapping paper department of Carter, Rice & Co., Corp., is passing a two weeks' vacation at his summer residence, Harwich, Cape Cod.

W. J. McLellan, head of the mill order department of the Carter, Rice Company, left yesterday for a two weeks' vacation, which will include a trip to Rutland, Vt., Lake Champlain, St. Albans, Vt., and return via the White Mountains.

Joseph S. Miller, of the New Haven Pulp and Board Company, New Haven, Conn., called on his connections in Boston last week. J. A. Mead, of the Powers Paper Company, manufacturers of envelopes and stationery, New York City, and F. R. Hopkins, representative of the advertisers Paper Mills, Holyoke, Mass., called on the trade last week.

Completing West End Improvements

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., August 1, 1932—Improvements which have been under way at the West End branch of the National Paper Products Company since early in the year are nearing completion. The interior section has been overhauled and a force of workmen have been employed steadily for some time. A considerable portion of the program consisted in changing the positions of the mill machinery and a huge electric motor has also been moved from the other branch here.

Both of the large paper machines at the mill are operating steadily five days weekly and all papermaking is now being confined to the West End division. All the converting equipment has been transferred to the other division of the plant near the local railroad station which is being used as a warehouse and for converting purposes. Construction of a new engineering office and core room on the front side of the West End branch is nearing completion, the dimensions being 60 by 80 feet. The structure is being built so as to provide easy connections with the other departments. Extensive improvements are also being made to the roof of the plant.

Within the past few years the West End division has been the scene of considerable new improvements with a view towards increasing production. A new machine room was constructed in 1930 following its purchase by the Crown-Zellerbach interests while improvements were also made at the other division.

S. L. Willson Club Outing

The S. L. Willson Club of the American Writing Paper Company, Holyoke, Mass., held its annual outing on the Connecticut River on July 14th. About forty members were present, games were enjoyed and a brief business meeting held. There will be no more meetings of the Club until September.

Activities of Fox River Valley Paper Mills

Tissue Division of Marathon Paper Mills Co. at Ashland Augments Staff—Mill Manager Metternich Reports Business Holding Up Fairly Well—Twenty Machines Now Operating In New Bag Plant of Thilmany Pulp & Paper Co. at Kaukauna.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 1, 1932—In order to keep up with orders, the tissue division of the Marathon Paper Mills Company, at Ashland, Wis., has added 25 young women to its pay rolls within the last three weeks. They will work in the converting division, where napkins, table cloths and other specialties are produced.

B. H. Metternich, mill manager, declares that business is holding up fairly well and that the crew is now sufficient to take care of the business on hand.

Pulpwood Operations Start

Pulpwood shipping operations have been started for the season at Ashland, Wis., by the Consolidated Water Power and Paper Company, of Wisconsin Rapids, Wis. The first raft of 8,000 cords of wood was conveyed successfully across Lake Superior by the Newaygo Tug Line, owned by the Consolidated. Twenty-five men have been placed at work on the hoist and loader to transfer the wood to cars for shipment to various Consolidated mills.

One more raft will be brought across this summer. The tug *Butterfield* is already *en route* across Lake Superior to Black Sturgeon Bay, Canada, to bring over this shipment. The quantity of wood shipped this year is much less than other years, due to a surplus left on hand.

A barge load of pulp which sank while in tow of the Newaygo tug three years ago will be raised from the bottom of Lake Superior, if it is not in too deep water. A group of business men of Ashland are considering this step, believing the salvaging of the pulp and barge will be worth the effort. Insurance was paid on the loss at the time and no attempt was made by the owners or the insurance company to recover it. Divers are to be employed to determine its location and the possibility of raising it by the use of air tanks.

New Thilmany Bag Mill

Additional machines have now been erected in the new bag mill of the Thilmany Pulp and Paper Company at Kaukauna, Wis. Twenty are now in operation. It is expected that within about two weeks the complete removal will have been accomplished from the company's former mill at Waukegan, Ill. Ten more employees have been added, and more will be employed as other machines are set up. With improvement in business conditions, it is expected at least 100 employees will be retained in this division.

Kimberly-Clark Report

Kimberly-Clark Corporation, Neenah, Wis., is still on the profit side, with good reserves. Net earnings for the first six months of 1932 were $411,860 as compared with $1,288,488 in the same period of 1931, or $.22 a share as compared with $1.97. Current assets in June, 1932. were $8,960,000, against which there are current liabilities of $1,739,395. In June, 1931, they were $8,180,626, with liabilities of $4,525,843. The asset and liability figures are from the latest available balance sheets as of December 31, 1931.

Allis-Chalmers Reserves Ample

Financial reports of two of the large corporations in Wisconsin show them to be in a strong position despite the times, with ample reserves to tide them over. Allis-Chalmers Corporation, Milwaukee, manufacturers of paper machinery, generators, turbine, etc., showed a deficit of $1,805,898 for the first six months of 1932 as compared to net earnings in the same period of 1931 totalling $1,006,000. The deficit per share of common stock was $1.87 for 1932, as compared to an earning of $.77 in 1931. Current assets and liabilities, however, show the company's stability. As of June, 1932, they were $26,615,000 against current liabilities for the same period of $4,308,965. In June, 1931 they were $32,338,213 as against liabilities $5,589,210.

News of the Industry

Junior forest rangers of 4-H clubs in eight counties last week made a tour of the forestry nurseries of the Nekoosa-Edwards Paper Company, Nekoosa, Wis., and the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. They were shown the extensive operations in forestry culture conducted by these two concerns to insure their future wood supply.

A branch station of the public library established in the store room of the Hoberg Paper and Fibre Company, Green Bay, Wis., is proving popular with employees. The collection contains a number of technical books on paper manufacture which are in extensive use. The library also contains books of fiction, travel, biography, philosophy and ethics, all of which are being circulated extensively.

Approximately 1,000 employees and their families attended the annual picnic of the Marathon Paper Mills Company at Ashland, Wis., last week. A tug-of-war between finishing department and office, and the machine room and maintenance departments was a feature of the amusements, and was won by the former team. Baseball games were played between teams of various departments. Prizes were awarded by the company for many contests. The day was topped off with dancing.

Industrial Rubber Goods

Containing engineering information and data never before published, a new, condensed catalog giving a simplified, comprehensive line-up of principal industrial rubber goods has just been issued by The B. F. Goodrich Rubber Company, Akron, Ohio. It is titled "Engineering Data, Industrial Rubber Goods" and is available to those who request it.

Among the condensed engineering data, is Table No. 1, Page 3, on rubber transmission belting, giving at a glance horsepower capacities, minimum pulley diameters, leather belt equivalents and list prices on all commonly used sizes of transmission belts.

Table No. 3, Page 8, on conveyor belts, gives data never before published in this form. It is easy, by following instructions on Pages 8 and 9, to figure the required sizes and plies of a conveyor belt without using a formula.

Table No. 6, Page 11, has never before been published and is a practical means whereby an engineer may estimate the pressure required to deliver a desired amount of liquid through hose of various diameters.

Many other subjects are treated.

Demand for Paper Falls Off In Toronto, Ont.

Practically All Grades of Paper In Light Request, Due to Seasonal Conditions—Manufacturers of Fine Paper Curtail Operations—Book Paper Tonnage Affected by Cutting Down of Publications—Board Industry Suffers From Over-Expansion.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 1, 1932—July saw a falling in both wholesale and manufacturing paper circles, due largely, to the holiday season which is now in full swing. Practically all classes of paper are now in light demand and that condition is likely to continue until the end of August when a return to at least a fair degree of activity is anticipated. Meanwhile the whole paper trade is pretty much in the doldrums. Fine paper manufacturers are operating lightly and there is little call for anything but the cheaper grades of paper. Commercial houses using printing and paper are cutting everything down to the finest point in the general desire for economy and this is reflecting itself in light paper sales.

With advertising volume light, the publishing trade has cut down the size of its publications and this in turn has caused a falling off in book paper tonnage put out by the mills. One of the leading mills specializing in book papers, however, reports that while the demand is spotty, with good sales one week and a slump the next, they have been able to average up their tonnage very well. Their sales of coated stock, they said, were away down for June and July and there was no immediate prospect of a revival in demand. The printing trade is decidedly dull, although the lithographing plants are doing fairly well and are making fair requisitions for paper.

The board mills continue to operate on a light scale and the industry is still suffering from the effects of over expansion and production. One mill in the Niagara District, however, has been operating close to capacity for some weeks and is doing a nice business in the British market. But of the three mills in Toronto, two have been operating on a five-day-a-week schedule, while a third has fallen below that even. The plant at Trenton has been running at about fifty per cent capacity. With bad business at the board mills the rag and paper stock houses have been inactive and the same holds good of the paper box industry, which is supplying only a small amount of business to the board mills. The board market is in an unsatisfactory condition but it is stated that at a meeting of mill men in Toronto a few days ago progress was made in efforts to stabilize the industry.

There has been little improvement in the paper converting trade and manufacturing stationers, envelope manufacturers and others engaged in similar lines are still feeling the pinch of hard times. Manufacturers of tissues and toilets and light weight paper generally have experienced little revival in demand and while they are placing some business it is nothing like it should be at this season of the year. The coarse paper market is still slow and the movement of wrapping, paper bags and kraft is light. Kraft manufacturers are doing some export business, with little profit, it is said, but the domestic market, both in Ontario and the Canadian West, is yielding a light volume of business.

Abitibi Agreement Reached

Premier Henry announced during the week that an agreement had been reached between the Ontario Government and representative bondholders of the Abitibi Canyon power development in which the Government is prepared to take over the Ontario Power Service Corporation, Ltd., a subsidiary of Abitibi Power and Paper Company, and complete the power plant at Abitibi Canyon under Government ownership. By these terms, the Government will give $18,000,000 of Hydro Commission Government-guaranteed 20-year debentures at a lower rate of interest, for the $20,000,000 outstanding Ontario Power Service Corporation 5½ per cent bonds.

The exchange will be made upon condition that 90 per cent of the Ontario Power Service Corporation bonds are deposited for exchange under the terms of the agreement. The debentures will be dated Oct., 1932, and first interest date will be six months later. They will bear interest at 3½ per cent for the first five years, 4½ for the next five years and 5 per cent thereafter for ten years. They will be payable as to interest and principal in Canadian funds only. Local quotations for Ontario public service bonds are around 72.

The Hydro will hold the right to redeem the debentures on any interest date at par so that should a period of cheaper money arrive when the bonds are paying 5 per cent, the government may use such cheaper money to retire the bonds.

In making the announcement Premier Henry traced the history of the enterprise and observed that the present agreement was the most convenient way of getting title to the property. If a sufficient number of the company's bonds are exchanged, the Hydro, he added will be able to start legal proceedings to acquire complete title to the plant. It is intended that the Hydro will transfer the property to the province and will continue to manage it on behalf of the province. It is stated that private capital made an entry into the negotiations, offering to put up money to complete the work, but in each case the Government indicated that it had control of the power situation in the north.

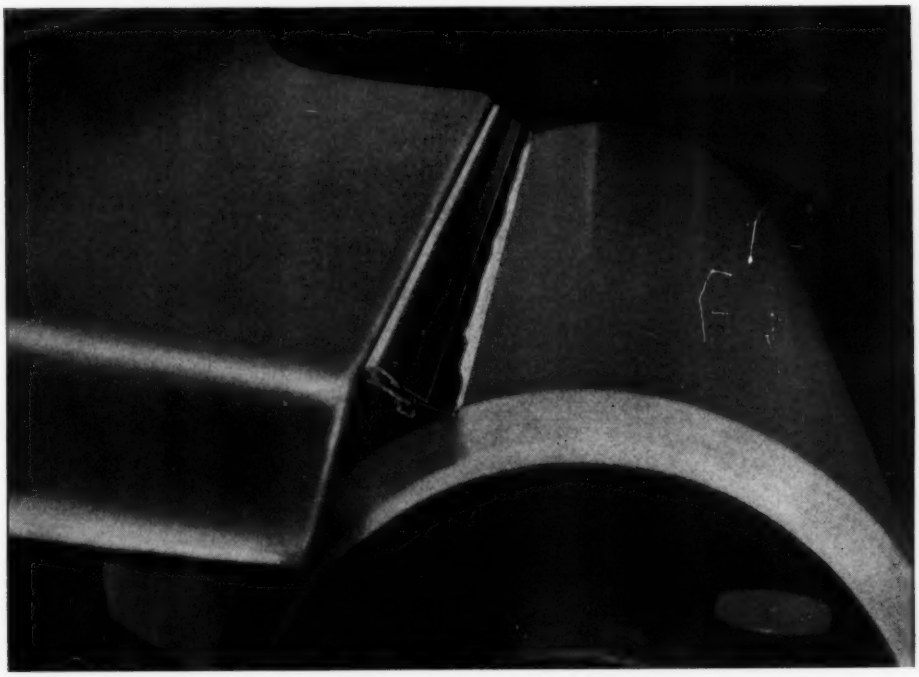
H. P. Gould Mentioned for Assembly

LYONS FALLS, N. Y., August 1, 1932—Harry P. Gould, prominent paper mill man of this village, is being mentioned as the candidate for Assemblyman from Lewis county on the Democratic ticket at the next election and friends are urging him to accept the nomination. If he accepts the nomination he will be following in the path of his father, the late G. H. P. Gould, founder of the paper concern.

Since the death of his father he has been the head of the various properties owned by the concern. He was appointed a director of the forestry school at Syracuse University in 1920 and is also prominent as a leading factor in numerous other organizations.

Container Suits Dismissed

CHICAGO, Ill., July 28, 1932—Dismissal of all receivership proceedings pending against the Container Corporation of America was announced today. Two suits had been filed, that in the Federal court at Chicago having been dismissed July 13, the one filed in Chancery court at Wilmington, Del. being dismissed yesterday. Allegations set forth in the bills of complaint were found in error.



Stop Press Roll Troubles

You can forget the grief . . . the pick ups and breaks . . . the endless tinkering and adjusting . . . the frequent refitting of blades—you can pack off *all* your press roll troubles when a Vickery Hi-Angle Doctor goes to work.

Check these *proved facts* about the Vickery Hi-Angle Doctor, with what you've been looking for. Then try one, at our expense and you will find the Hi-Angle is the world's finest press roll doctor.

* * *

Perfect two-way flexibility—the blade is freely supported—follows every bit of roll surface uniformly. **Steep Operating Angle**—permits cleaner doctoring with less pressure—no heeling. **Water-tight**—nothing can pass the blade. **Long Blade Life**—blades last long, cost little. **Easy Blade Replacement**—no tools required—only one minute. **Economical, Automatic Operation**—simple, low-cost blades—no adjustments, no fitting to bother with. **Continuously Clean Press Rolls**—over every inch of surface, day-in and day-out.

BIRD MACHINE COMPANY
South Walpole, Massachusetts

VICKERY *HI-ANGLE* DOCTOR

5374

New York Trade Jottings

Scott Paper Industries, Inc., has been chartered under the laws of the State of Delaware, with a capital stock of $100,000. The U. S. Corporation Company, of 150 Broadway, New York, were the attorneys

* * *

Bogota Paper and Board Corporation has been incorporated under the laws of the State of Delaware, with a capital stock of $650,000 and 10,000 common shares. The Corporation Trust Company, of 120 Broadway, New York, were the attorneys.

* * *

Frank G. Miller, Dean of Forestry, of the University of Idaho, Moscow, Idaho, visited several of his friends in the New York paper industry early this week. The Dean and his wife have just returned from an extended tour of Europe.

* * *

Gilbert L. Clark has joined the organization of the Standard Products Corporation, manufacturers and importers of fine tissues, with general offices at 21 West 18th Street, New York. Mr. Clark recently resigned from the Smith Paper Company, where he was vice-president and in charge of manufacture.

* * *

The 12th and final volume of "Birds and Trees of North America," that monumental and artistic work by the well known artist, Rex Brasher, has just been published and can be seen at the offices of Royal S. Kellogg, secretary of the News Print Service Bureau, 342 Madison Avenue, New York. The volume contains no less than 78 hand colored plates done in the Chickadee Valley, near Kent, Conn., and printed on all rag paper.

* * *

Louis Dejonge & Co., coated paper manufacturers, of 71 Duane street, New York, announce the retirement of Charles I. McLaughlin effective July 1. Mr. McLaughlin has been associated with the company since 1873 and for the past 27 years has served as an officer and director. In announcing his retirement the company expresses its deep feeling for his long years of able and faithful service. The company also announces that the office of treasurer is now held by H. F. Bergstresser, who has served as assistant treasurer for the past three years.

* * *

The Northwest Paper Company announces the appointment of the well known paper merchants, Forest Paper Company, Inc., 334 Hudson street, New York, as their new distributors of Northwest Pedigreed Papers. Klo-Kay E. F. Book, Northland E. F. and Northland S. and S. C. Book will be stocked for immediate delivery. A wide variety of other well known Northwest brands will also be available through this outlet. In commenting on this new connection, Mr. Pomerance, of the Forest Paper Company, says—"We feel that the insistent demand for immediate stock deliveries of large orders of medium and low-priced book papers will confirm our confidence in stocking Northwest printing papers in substantial quantities."

Swedish News Print Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 3, 1932.—Swedish news print mills during the month of May turned out 17,905 metric tons of paper against 21,805 tons during April and 16,405 tons during May according to word received by the Department of Commerce.

More Optimism in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 1, 1932.—In spite of economic conditions and summer dullness the local paper trade appears to be more optimistic than at any time during recent months. Some attribute their optimism to the rising price of all farm products, which they say is certain to release a lot of wealth in the country this fall. Others point to Wall Street, which last week seemed to come to life. Whatever it is, there is more enthusiasm.

The fine paper market is worrying through the summer as best it may. Sales are being made, of course, but they are for small lots. However, the volume of cash business, as compared with credit business, is encouraging. Prices remain about the same as the week before. Jobbers are making few concessions in order to make sales, for their stocks are in a well balanced condition and most of them are waiting for the fall season to open, which it should do by the middle of this month. Reports from printers and advertising agencies show that several good prospects are in the market for direct mail and catalogue material this fall. Whether these can be closed, is problematical.

Summer specialties, in face of an extremely hot week spurted to a marked degree. Napkins, plates and similar items were much in demand. Stocks in dealers' hands, because of their buying policy, are low and reorders are the rule. The bag market, also is good, cleaners' bags and other items of like nature being wanted. The container demand also is good and the local factory executives are more optimistic. This summer will show, perhaps, an increase over last year in these lines. Another line of paper business that has no kick coming is the bakery paper line. Indiana factories are working to capacity and report business prospects such as to indicate continued production for months to come. Extremely hot weather cut down some on the demand for building paper. This had been expected, however, since summer in Indiana always is a little dull in the building line.

Northwest Paper Co. Adds New Distributors

In line with Northwest's aggressive advertising and sales program, a number of new and outstanding paper distributors have taken on various lines to meet the increasing popularity being accorded Northwest Pedigreed Papers. The most recent to enlist under the Northwest banner are as follows:

The Karl C. Franklin Paper Company of Buffalo, N. Y., which will stock Northwest's Klo-Kay E. F. Book as also Northland E. F. Book.

Acme Paper Company of St. Louis, Mo., which will stock Northland E. F. Book.

Forest Paper Company, 334 Hudson street, New York City, which carry three lines comprising Klo-Kay E. F. Book, Northland E. F. Book and Northland S. & S. C.

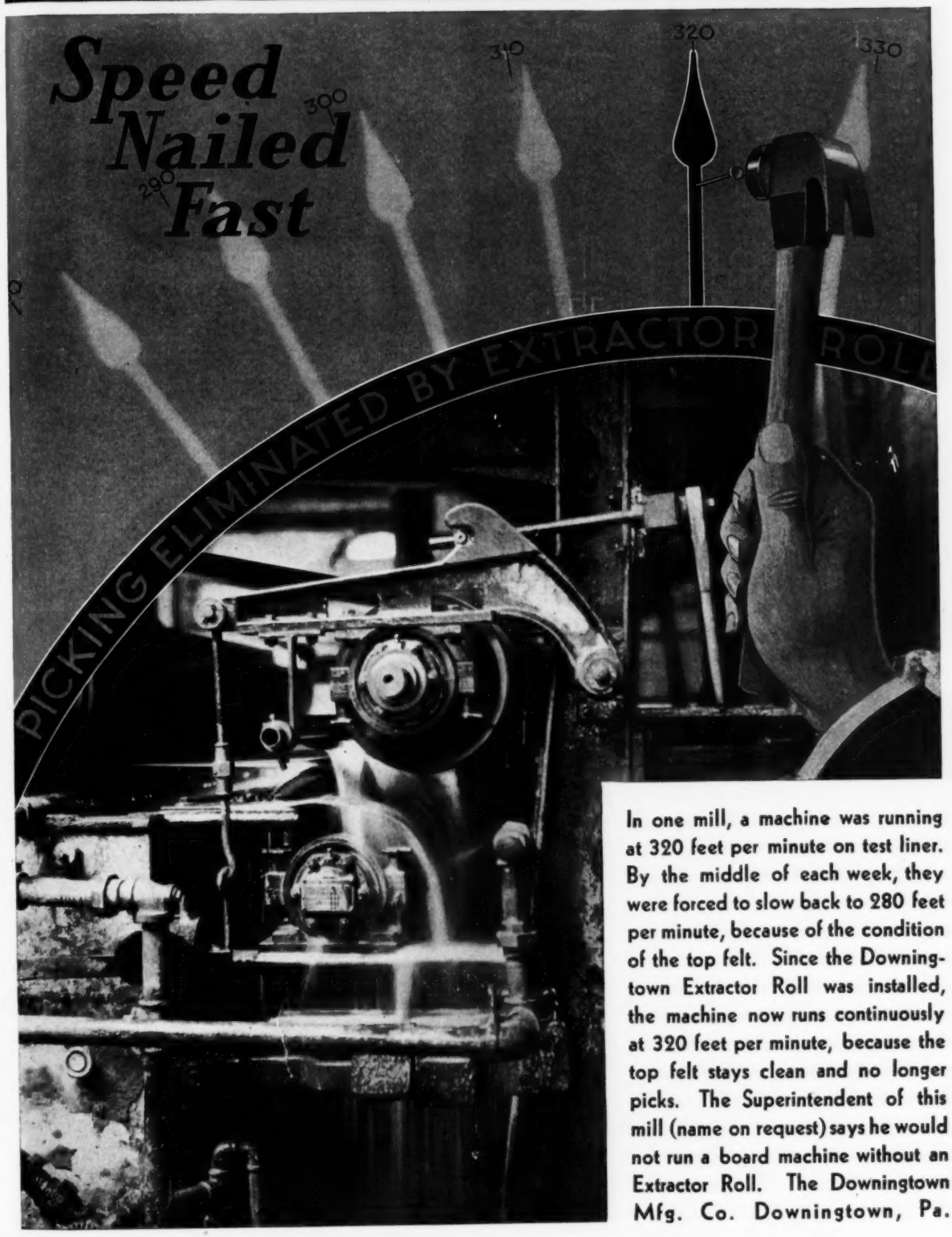
R. C. Noble, Inc., of Cleveland, Ohio, are now stocking Klo-Kay E. F. Book in addition to Northland E. F. Book previously carried by them.

Holyoke Water Power Down for Two Weeks

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 2, 1932—The annual shutdown of the Holyoke Water Power Company closed yesterday the water having been drawn out of the canals Thursday to allow of what repairs are needed to be done by the manufacturers to be attended to. Most of the work this year was of a minor nature. The water was let into the canals again yesterday morning at 6.

DOWNINGTOWN



In one mill, a machine was running at 320 feet per minute on test liner. By the middle of each week, they were forced to slow back to 280 feet per minute, because of the condition of the top felt. Since the Downingtown Extractor Roll was installed, the machine now runs continuously at 320 feet per minute, because the top felt stays clean and no longer picks. The Superintendent of this mill (name on request) says he would not run a board machine without an Extractor Roll. The Downingtown Mfg. Co. Downingtown, Pa.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Grand Rapids, Minn.—The Blandin Paper Company, First street, is awarding certain contracts for equipment for new power plant at mill, estimated to cost about $125,000, with machinery, and will place other contracts in near future. It is understood that work on the plant will begin in August. General contract was let recently to the James Leck Company, 211 South 11th street, Minneapolis, Minn. A pulverizer for fuel service will be furnished by the Strong-Scott Manufacturing Company, Taft street, Minneapolis. Richard E. Lutz, Corn Exchange Building, Minneapolis, is consulting engineer.

High Point, N. C.—The Industrial Lithographing Company, High Point, has taken over property at 111 South Hamilton street, and will establish a plant for the manufacture of dry paper transfers for hosiery mill service. It is proposed to have unit ready for operation at an early date.

Brooklyn, N. Y.—Standard Folding Cartons, Inc., Brooklyn, recently organized by Edward Yudell, 9502 Kings Highway, Brooklyn, and associates, with capital of 200 shares of stock, no par value, plans operation of local plant for manufacture of folding paper boxes and cartons.

Milford, N. J.—The Riegel Paper Corporation has adopted an increased production schedule at its local mill, and is now working at close to capacity, with full time basis in all departments. The company is said to have more business on hand than for any time during the past two years. About 25 men recently have been added to the working quota. The Warren mill of the company at Riegelsville, N. J., is also operating on a better production schedule, with larger working force.

Kimberly, Wis.—In connection with an expansion and improvement program an acid plant at mill at Kimberly, recently referred to in these columns, the Kimberly-Clark Corporation, North Commercial street, Neenah, Wis., is said to be planning an expenditure of $75,000, including installation of certain new equipment. Work is scheduled to be placed under way soon.

Chester, W. Va.—The E. C. Ottis Manufacturing Company, manufacturer of roofing papers, etc., has resumed production at its recently completed local mill, following curtailment for several weeks. The company is said to have secured a number of large orders, insuring continuance of manufacture for some time to come. The plant has started up on a four-day-week basis, divided into three eight-hour shifts. The company recently removed to Chester from Toronto, Ohio.

Monroe, Mich.—Fire recently damaged a portion of Mill No. 11 of the Consolidated Paper Company, on Noble avenue. Estimated loss has not been announced, but is reported as slight, approximating $4500. The damage will be replaced.

Gas City, Ind.—The Hercules Container Corporation, recently organized with capital of 1000 shares of stock, no par value, plans operation of local plant for the manufacture of paper and fiber containers and boxes. The new company is headed by Robert R. Batton and H. M. Honecker, both of Gas City.

Lewistown, Pa.—The Viscose Company of America, Inc., Marcus Hook, Pa., is increasing operations at its local cellulose mills for production of rayon products, and has added a second group of 400 workers, making a total of 800 persons now engaged at the plant. It is expected to advance this working early in June, the plant being completely closed for a month.

Corinth, N. Y.—Large shipments of Russian woodpulp are arriving here by rail from Albany, N. Y., for distribution to paper mills in this district. About 40 carloads were handled in one day recently. The material reaches the Port of Albany from Russia direct by water route.

Long Island City, N. Y.—The Tachette Manufacturing Corporation, recently organized by local interests with capital of $20,000, is planning operation of a paper converting plant for the manufacture of a line of paper specialties. The new company is headed by LeRoy Latham and Albert E. Davis, both of Woodside, Long Island City.

Newark, Del.—The Curtis Paper Company has been organized under state laws with a capital of 7500 shares of stock, no par value, to take over and succeed to the Curtis & Brother Company, operating a local paper mill. The incorporators of the new company include officials of the former concern, including Charles M. and Robert C. Levis, and Herbert W. Mason.

Ampthill, Va.—The duPont Cellophane Company, Wilmington, Del., and Buffalo, N. Y., is holding to a capacity schedule at its local plant, with full working force in all departments. It is expected to continue on this basis for an indefinite period.

Niagara Falls, N. Y.—The Bliss-Latham Corporation, recently organized, will take over and consolidate the H. R. Bliss Company, Inc., with local plant at Eighth street and Erie avenue, specializing in the production of wire-stitching machinery for manufacture of corrugated paper and fiber boxes and containers, and the Latham Machinery Company, 1153 Fulton street, Chicago, Ill., manufacturer of kindred machine products. The new company will continue production at present plants and will carry out general development program. The Dexter Folder Company, 28 West 23rd street, New York City, manufacturer of paperfolding machines and equipment, is interested in new company, having held a controlling interest heretofore in the Latham company.

Bromptonville, Que.—The Brompton Pulp and Paper Company, Ltd., is said to be planning early rebuilding of portion of mill unit used as a board house for storage and

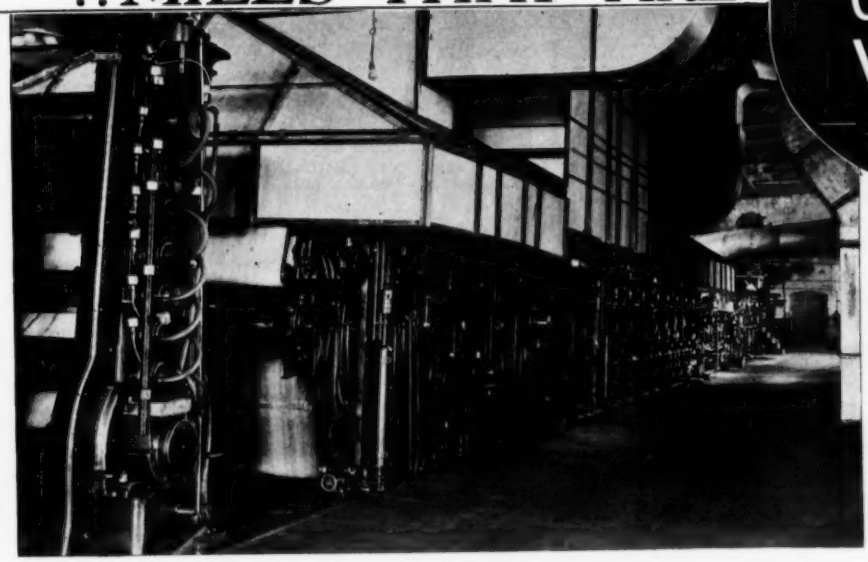
Monadnock Paper Mills

BENNINGTON, N. H.

. . . is another of the

..MILLS THAT ARE

CUTTING COSTS WITH AIR



Modern Machine Room of the Monadnock Paper Mills showing Ross Hoods and Exhaust System recently installed.

Monadnock Paper Mills is another of the progressive organizations that are utilizing more efficient methods and equipment to provide maximum economy in operations. Another indication that the well managed mills are invariably the well equipped mills.

In the Monadnock Mill machine room, AIR is scientifically harnessed, treated and directed by means of Ross apparatus to keep heating and ventilating costs at a minimum. The result is a corresponding improvement in machine operating conditions.

J. O. ROSS ENGINEERING CORPORATION

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Main Office—122 E. 42nd Street
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PORTLAND, ORE.

ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

distributing service, recently damaged by fire with loss reported at close to $35,000.

New Companies

New York, N. Y.—The Biltmore Paper Company, Inc., has been incorporated with a capital of 1000 shares of stock, no par value, to manufacture and deal in paper products. The incorporators are William Solomon and Louis Rothman, 1480 Shakespeare avenue, Bronx, New York.

Rochester, N. Y.—The United States Latex Corporation has been incorporated with a capital of 200 shares of stock, no par value, to manufacture latex fiber products. The incorporators are Walter C. Green, Jr., Alfred W. Dunbar and Lewis Clinton, 31 Exchange street, Rochester.

Chicago, Ill.—The Freedman Bag Company, 1648 South Homan avenue, has been organized to manufacture heavy paper bags, suitable for laundry and kindred service. Jacob Freedman is the principal incorporator. Company is represented by Ivan B. Goode, 127 North Dearborn street, attorney, is representative.

New York, N. Y.—Lindsay L. Baird Company, Inc., has been incorporated with a capital of $5000 and 25 shares of stock, no par value, to manufacture and deal in paper goods. The incorporators are William Frascella, Herbert Hagenah, and Lindsay L. Baird, 208 Tulip avenue, Floral Park, L. I. Last noted will head the company.

Thrifty Advertising

"Thrift" is the keynote of a powerful new paper campaign now being conducted by distributors for Eagle-A American Eggshell Text.

This advertising campaign, produced by American Writing Paper Company, Incorporated, is built around an interesting and helpful demonstration book entitled "Thrifty Advertising with American Eggshell Text." Besides the book, five unusual mailing pieces, 2 first class letters and 2 envelope enclosures comprise the direct mail portion of the campaign. Advertisements selling the "Thrifty Advertising" idea are running concurrently in a number of printing and advertising trade publications.

In selecting "Thrift" as a basis for this campaign the advertisers have fastened to a timely and sensible theme. It packs a real punch, according to reports, as applied to the attractive and inexpensive paper advertised.

One of the outstanding features of the "Thrifty Advertising" campaign is the splendid cooperation offered to printers in the form of two unusual envelope enclosures with suitable reply cards, for printers to imprint and mail out. There is no cost or obligation attached to this service.

Early returns from mailings in this paper campaign indicate that tremendous interest is being shown in "Thrifty Advertising" by the Graphic Arts Industry. In these days of curtailed appropriations it is encouraging to find a manufacturer with the vision and courage to go ahead with such an ambitious project.

E. A. Kennedy Goes With Northwest Co.

The Northwest Paper Company, with mills at Brainerd and Cloquet, Minn., announces the appointment of Edward A. Kennedy to their sales organization, with headquarters in Chicago, Illinois.

Mr. Kennedy will represent the company in the publication field. Twenty-three years of broad and interesting experience have equipped him to render exceptional service in this specialized market. He was formerly connected with the Great Western Paper Corporation, the Mead Sales Company, and Frasier Paper, Ltd.

PHILADELPHIA OUTLOOK BRIGHTER

(Continued from page 15)

Joseph B. Mitchell, and his associates now connected with the firm, W. F. Killhour and George J. Geiss. Far many years the company conducted its wrapping paper and specialty business at 6th and Commerce streets and later at 2nd and Arch streets. Four years ago the firm removed to its present Vine street address for the purpose of providing larger warehousing and equipment to expand its business in paper, twines, bags and specialties. The late Mr. Mitchell was one of the veterans of the Quaker City paper industry and had been connected with paper distribution for more than fifty years. He was for many years associated with the old H. G. Elliott Company, a pioneer paper distribution concern of Philadelphia.

News of the Trade

Guy Beckett, head of the Beckett Paper Company, manufacturers of the Beckett and Buckeye cover papers, Hamilton, Ohio, has been making the rounds of the Quaker City trade in his tour of the East.

Members of the Direct Mail Advertisers Association linked with the Philadelphia Paper Trade, will attend the convention of that body to be held in New York City at the Hotel Pennsylvania, October 5 to 7. Among the local trade associates who will attend are George W. Ward, of the D. L. Ward Paper Company; Hubert Foster, of the A. M. Collins Manufacturing Company, and N. A. Considine, of the Paper House of Pennsylvania.

N. A. Considine, head of the Paper House of Pennsylvania, will join his sons during the month of August at their Cabin Camp in Potter County, where the younger Considines are spending the summer months. Miss Catherine Woods, secretary to Mr. Considine, is spending several weeks in Atlantic City.

Allen E. Whiting, head of the Whiting Patterson Company, 340 North 13th street, who has been spending a month at Cape Cod, Mass., at his summer home, will return to his desk this week.

Harry M. Glenn, who for the past thirty years has been associated with the Charles Beck Paper Company, passed away suddenly on Wednesday, following a stroke. He has been sales representative for the Beck company, in Atlantic City and surrounding. His death occurred at his home 105 North Morris street, Atlantic City, to which he had been confined for the past two weeks. Burial took place in Mt. Peace Cemetery, Philadelphia.

Note on Sampling of Shredded Pulp

A large Western pulp mill which produces shredded pulp and has been using the Crossley sampling tool finds that for its product the tool acts better if the cutting edge has its bevel on the outside. The tool as now made has a chisel edge with the bevel on the inside, it being found to act better in this shape with sheeted pulp.

The Thompson Manufacturing Company, Lancaster, N. H. which makes this tool advises the Joint Committee on Approved Pulp Testing Chemists that it will be pleased to put either type of edge on the tool when it is ordered and there will not be any extra charge.

New Gummed Products Sample Book

The Gummed Products Company, Troy, Ohio, has just issued a new sample book which illustrates the various lines of gummed products they manufacture. It gives a complete schedule for the best gumming for certain surfaces, showing samples which serve each individual requirement.

Note the *Bottom* Blade Mounting » »

—IT'S DIFFERENT

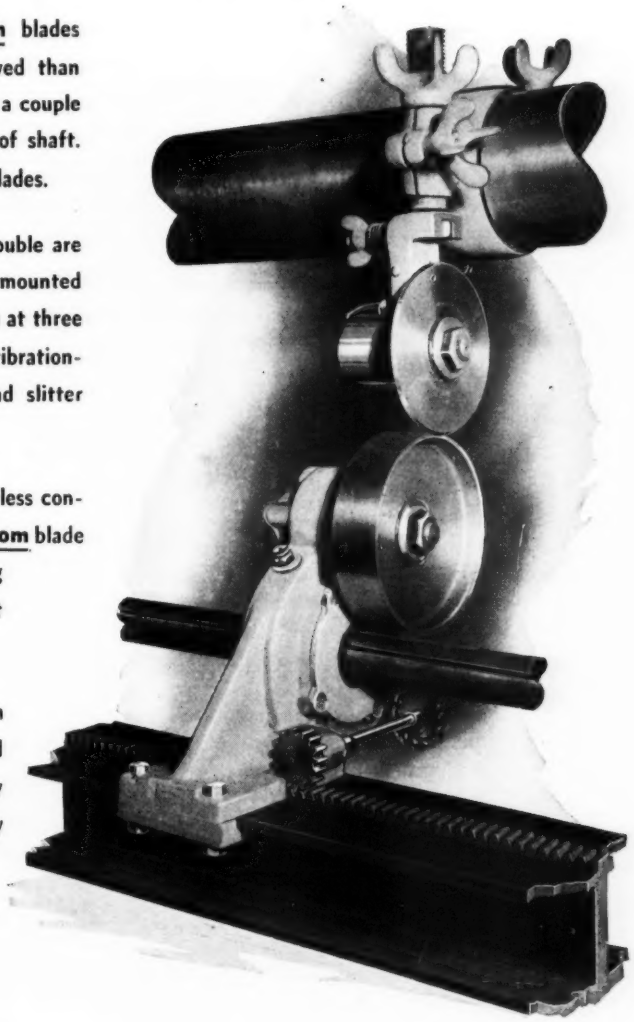
ACCESSIBLE for YOUR CONVENIENCE

Under the usual arrangement of mounting **bottom** blades directly on shaft, a dull blade is more easily observed than cured. It is necessary to dismount shaft, and possibly a couple of blades, to replace a dull or nicked blade midway of shaft. Hence the tendency to postpone regrinding bottom blades.

In "M & W" Ball Bearing Slitters, these causes of trouble are avoided. The **bottom** blades, instead of being mounted directly on shaft, are mounted above it and gear-driven at three times shaft speed. This permits using slow-running, vibrationless shaft. Both drive shaft (which is splined) and slitter spindles run in annular ball bearings.

This gives a true-running, almost frictionless and wearless condition with minimum need for lubrication. Any **bottom** blade can be replaced in a moment or so, without disturbing shaft or any other blade, merely by undoing end nut holding it on its shaft.

To complete the improvement, top blades also run in ball bearings. Thus the chance of frictional drag, and of wabble due to worn bearings, is eliminated. Any top blade is replaced, like any **bottom** blade, by removing one nut.



- SAVES CLAIMS FROM PRINTERS DUE TO DUST AND BAD EDGES.
- PREVENTS BLADE WABBLE THUS ELIMINATING SLITTER CRACKS.

Easy Blade Removal

Off and on in a Jiffy . . . Just undo the Nut

THE MOORE & WHITE COMPANY

Paper Mill Machinery

FIFTEENTH ST. AND LEHIGH AVE. PHILADELPHIA, PA.

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COMING EVENTS

Technical Association of the Pulp and Paper Industry, Fall Meeting, Nonotuck Hotel, Holyoke, Mass., September 14, 15 and 16, 1932.

TAPPI ADVISORY COMMITTEE

Plans are being energetically pushed by the local convention committee under the chairmanship of Helen U. Kiely, chief Chemist of the American Writing Paper Company, to have one of the most successful Fall Meetings ever held by the Technical Association of the Pulp and Paper Industry at Holyoke, Mass., from September 14 to 16, 1932.

The general chairman of the local committee has just announced the membership of the Advisory Committee of which George E. Williamson, treasurer of the Strathmore Paper Company and former president of the Technical Association is chairman. Other members include:

S. L. Wilson, president American Writing Paper Company, Holyoke, Mass.

A. B. Daniels, president L. L. Brown Paper Company, Adams, Mass.

Courtlandt Griffin, president Carew Manufacturing Company, South Hadley Falls, Mass.

Harold Hixon, secretary Chapin & Gould Paper Company, Russell, Mass.

Joseph Prescott, vice-president Collins Manufacturing Company, North Wilbraham, Mass.

W. M. Crane, Jr., president Crane & Co., Dalton, Mass.

C. A. Crocker, president Crocker-McElwain Company, Holyoke Mass.

A. D. Coffin, president C. H. Dexter & Sons, Windsor Lock, Conn.

H. J. Guild, vice-president Eaton Paper Company, Adams, Mass.

C. H. Waite, secretary-treasurer Erving Paper Mills, Erving, Mass.

I. N. Esleeck, president Esleeck Paper Company, Turners Falls, Mass.

Constant Southworth, president Hampshire Paper Company, South Hadley Falls, Mass.

F. A. Juckett, president Hurlburt Paper Company, South Lee, Mass.

A. R. Smith, treasurer Keith Paper Company, Turners Falls, Mass.

John Bagg, treasurer Millers Falls Paper Company, Millers Falls, Mass.

W. J. Raybold, president Rising Paper Company, Housatonic, Mass.

T. S. Southworth, president Southworth Paper Company, West Springfield, Mass.

H. A. Moses, president Strathmore Paper Company, West Springfield, Mass.

G. B. Fowler, treasurer Valley Paper Company, Holyoke, Mass.

Paul Moore, vice-president Westfield River Paper Company, Russell, Mass.

Philip Weston, president Byron Weston Company, Dalton, Mass.

William Whiting, president Whiting Paper Company, Holyoke, Mass.

During the meeting there will be an excellent opportunity to visit mills making a wide variety of paper and converting them into other products. Trips have been arranged to inspect mills making the highest grade rag bonds and ledgers, papeteries, rag-sulphite papers, bristols, book, writing, offset, tissue, envelope, blue print, mimeograph, map, drawing, cover, filter and industrial papers.

Besides the technical and mill visit portion of the program a recreational program is under way. Holyoke is in the foothills of the Berkshires, a beautiful section of New England and a popular summer and fall resort. There are many excellent golf clubs in the Holyoke area and during the week following the meeting will be held the famous Eastern States Exposition in Springfield. A particularly attractive program is being arranged for the benefit of the ladies who attend.

Room reservations should be made at once direct with the Nonotuck Hotel in Holyoke, Mass., or through E. C. Tucker, vice-president of the Crocker-McElwain Company, chairman of the arrangements committee.

PAPER MAKING GOES MODERN IN CHINA

Paper making, an ancient hand operated industry of Foochow, China, has gone modern with the opening of a new mechanically equipped paper mill in that city, according to a report from Vice Consul Ralph Townsend, Foochow, made public by the Department of Commerce.

The new mill, which is largely equipped with American paper-making machinery, has at present, a daily output of about five and one half tons of paper, operating with 250 workers it is said. Compared with the largest paper making establishment in the city operating under the old hand methods, the new plant's daily production is equal

to about that of 5,000 hand workers, the report states. The American trained manager of the new mill states that present orders warrant the expansion of the daily capacity to about four times the present output.

The principal papers being made by the plant at present are, according to the report, writing paper and paper used for the manufacture of Chinese umbrellas and other paper goods used in China. Rice straw and reeds, which have made the province distinctive in the paper industry for centuries, are the chief materials used in the new mill, it is said.

Against Rate Reduction on News Print

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., August 1, 1932.—A brief has been filed by steamship company officials with the Interstate Commerce Commission seeking to have denied an application made by the New York Central Railroad to reduce rates on shipments of news print paper from this section to Chicago. It is alleged that the railroad desires to eliminate water competition through the port here by such action. The application made by the railroad asks for permission to reduce the rate from 38 to 33 cents for every one hundred pounds.

The protest filed by the steamship officials contends that the railroad by such action seeks to eliminate water competition because scarcity of traffic makes it anxious to secure all available. The brief points out that the product involved is sold by the St. Regis Paper Company to Montgomery Ward & Co., Chicago, and that a major portion of it is normally transported by rail because of the season of closed navigation on the Great Lakes.

The application filed by the railroad claims that a reduction of the rate from Northern New York cities is necessary if the traffic is to be retained. It also brings out that traffic officials of the St. Regis Paper Company have testified that they preferred a movement by rail entirely instead of part water and rail shipments now used on some of the traffic. It also contends that the Chicago concern prefers an entire shipment by rail at the reduced rate.

Rinman Process in Liquidation

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 3, 1932.—The Swedish Company exploiting the Rinman process is in liquidation, according to Commercial Attache M. H. Lund. The Rinman process attracted considerable attention a few years ago, especially for the production of chemical pulp from straw. Only one mill actually installed the necessary equipment, and while production was started, it had to be abandoned later because the cost of operation was exorbitant. One of the advantages claimed for the process was the utilization of by-products, but it was found upon experiment that they could usually be produced synthetically at a lower cost.

Improvement at Fort Edward

FORT EDWARD, N. Y., August 1, 1932.—Improved conditions are reported from the local branch of the International Paper Company and during the past week several shipments of the finished product were transported to customers. The working week has been prolonged because of the improvement and indications are that steady operations will soon be observed. It is understood that the present curtailed schedules will continue until the volume of orders permits other arrangements.

New White Water Recovery Device

A simple, compact, and economical device for the complete recovery of fibres from white water and also applicable to the clarification of green liquor and cooking liquor for sulphate and soda mills has been developed by the Pacific Flush-tank Company, 4241 Ravenswood Avenue, Chicago, Ill. During a series of test runs made on this machine with white water, the effluent at all times remained crystal clear.

The machine is constructed in units either concrete or steel, rectangular in shape and can be easily installed in an operating plant without delaying production, and once in operation needs no further attention. Being built on the unit basis, the capacity can be increased as required without interference to the operating unit.

The unit consists of a series of superimposed trays with a means for removing the clear effluent continuously while the sediment is being carried to the pumps by a slow moving scraper, operated longitudinally on tracks and consisting of a standard type motor, speed reducer and a simple reversing arrangement. The scraping mechanism is so installed that by raising the main shaft one inch and turning same 90 degrees the entire moving parts can be removed for inspection or repairs without the delay of emptying the unit, which is a distinct advantage, as the only part subject to wear is the scrapers.

The settling rate of the material is not depended on, as the sediment on each tray acts as a screening medium for the slow settling particles which ordinarily would not settle at all; the result is a rapid separation of solids and liquids and a greater capacity on a smaller unit.

The advantages claimed by the manufacturers are as follows:

(1) Saving in space due to large capacity on small units.

(2) Low initial cost which decreases greatly with size of installation increases.

(3) Compactness reduces incidentals e.g., piping electrical conduits, etc.

(4) Rugged simple construction with all standard parts reduces maintenance and replacements.

Efforts To Settle Union Bag Strike

HUDSON FALLS, N. Y., August 1, 1932.—Efforts to bring about a settlement of the strike at the Union Bag and Paper Corp. are to be made by the Allied Printing Trades Council which is now in session in this district. John P. Burke, president of the Pulp, Sulphite and Paper Mill Workers' Union, which is affiliated with the organization, is to address the delegates and it is expected that some plan will be outlined.

The situation remains about the same with the strikers continuing to hold out for union recognition. Both branches are maintaining operations with non-union help under the open shop system and it is understood that protection and shelter will be provided by the company indefinitely. Reports that the transporting of the strikebreakers to the mills would be discontinued after August 1 and the police guard withdrawn are denied by officials. It was said that within the past few weeks a number of the strikebreakers have either left their jobs or been laid off.

At a meeting this week J. J. McIntee, head of the Machinists' Union, declared that the workers were ask to take a 16 per cent cut in wages despite the fact that a 10 per cent reduction was made last year. He declared that they were willing to take a 10 per cent cut but the company refused to sign any agreement and also display an intention of operating with two shifts.

For the Strength that is in Unity

GREATER opportunity for service, and the strength that is in unity . . . this is the background of the new **AMERICAN CYANAMID & CHEMICAL CORPORATION**, for it represents a consolidation of the technical, manufacturing, sales and shipping facilities of long-established, powerful organizations . . . the American Cyanamid Company (Industrial Chemical Division); American Cyanamid Sales Company; Kalbfleisch; Klipstein; Wiarda; Superior Chemical; Fumigators' Supply Co.

Each of these has achieved a name as a great chemical institution in its own right; now, in combination, they bring to every customer a completeness and diversity of service which is unique.

● And the American Cyanamid & Chemical Corporation controls the activities of these companies: American Powder Company, The Selden Company, Structural Gypsum Corporation, Owl Fumigating Corporation, The Kalbfleisch Corporation of Surinam.

American Cyanamid & Chemical Corporation

535 Fifth Avenue, New York

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Modern Alkali Recovery Systems

By A. B. Gregg[1]

During the recent months there has been shown a considerable interest in alkaline pulp liquor recovery processes. Officers representing the various pulp companies have seen fit to travel extensively for the purpose of seeing and studying the processes and equipment for recovery.

Papers have been read at association gatherings and discussions have been entered into relative to the merits of particular installations and types of units.

The final argument should be a dollars and cents net profit for the operating company. But there are other considerations.

Mr. Wagner's paper read at the annual meeting of the Technical Association of the Pulp and Paper Industry reviewed the patent history of recovery systems, but there have been improvements and other changes which have appeared in recovery rooms not listed in patents.

A few years ago practically all of recovery furnaces were of similar design. They were square; either double with a midwall or two separate smelters discharging hot gases through a common furnace neck to the rotary, or single square or rectangular units.

As at present, soapstone was the common lining material. It was common practice to pour an outside concrete retaining wall or box and lay the soapstone lining within this enclosure with a small expansion opening between the concrete and soapstone. The concrete walls were tied with I-beam straps.

Air pipes were water cooled as at present and were placed through the sidewalls of the smelter. In the single or two-separate-smelter-per-unit systems four airpipes per smelter were usually used. With the double smelter-with-midwall-type six pipes were used, two for the front of each smelter and one at each end.

The arch was the source of considerable trouble. Arches were made of fire brick either suspended or keyed in. Others were of chrome brick. In any case the brick arches were short lived. Later came the water cooled arches or pans.

There have been no vital changes in the original rotary incinerator. The lip for the front end was developed to hold the liquor from gushing from the rotary. Some mills tapered-in the rotary lining to act as a smooth dam; others bolted a flat ring to the rotary; one mill now uses a specially designed cast water cooled lip ring.

The rotary incinerator lining has been generally fire brick although soapstone and chrome brick have been used.

Combustion chambers have been installed for years as a space for the complete combustion of the smelter and the incinerator gases and as a catchall for suspended soda particles in the gases.

Two, three, and four sets of discs per unit have been used in various mills, usually two were found to be inefficient as indicated by the high stack temperatures; four have been found to be too many as indicated by below dewpoint stack temperatures. In such cases there was either waste of potential evaporation or a recondensing effect. Three sets of discs have been found in most cases to be proper.

Later developments were the round steel encased smelters, the air cooled smelter walls, the vertical central multi-outlet air pipe, self feeding devices such as the spiral conveyor, use of the boiler between the combustion chamber and the discs, stack gas scrubbers, and multi-sided discs with cross plates.

The round smelter was a decided step toward decreasing maintenance costs. The square lining often fell into the smelter. The round lining does not fall in, and the steel shell holds it from moving outward. The old square lining often fell in perhaps months ahead of its actual burning or wearing out. The round lining remains until removed by the brick masons or until burned out. The double lining, as introduced in the Wagner unit, serves to reduce the lining costs, because of the elimination of replaceable lining in the zone of most wear. I have suggested the use of a 9 inch outer and a 3 inch backing lining in all cases where 12 inch linings are used. These dimensions could be changed to meet other cases. Such a procedure would decrease lining costs in the ratio of the smaller dimension to the total lining thickness.

Adolph Waern developed the air cooled section. This is a two shell design with air space between. The primary air enters at the back or at any convenient point along the outer shell, travels between the two shells and is discharged to the supply line to the primary air nozzle. This practice undoubtedly increases the lining life to a considerable extent.

In Sweden was developed the central vertical air nozzle. It enters through the arch and is usually suspended from beams above the arch. Latest designs of this nozzle have three to five vertical rectangular air outlets. The first pipes were designed similar to the customary side pipe. Later they had several horizontal rows of small holes. The single outlet at the bottom caused the smelter bottoms to burn out excessively. Also the air distribution was not

[1] Assoc. member TAPPI, engineer, Columbus, Ohio.

efficient. The small holes became plugged easily. The larger rectangular openings proved most satisfactory.

Some operators prefer this type of blow pipe to the usual side pipes, but it appears to me, after close study of each type, that the latter are more efficient. It is true that the central vertical pipe appears to be conducive to longer smelter lining life, but it also appears that the air distribution by the side air pipes is better. The side pipe is more easily accessible and may be inspected for plug conditions. More nearly uniform conditions of fuel bed are possible to attain with the side pipes than with the one vertical pipe.

It has been customary to supply the primary air from a positive pressure blower. This custom persists. Originally one large blower was installed to supply air for the entire recovery room, or to three or four recovery units. Later the blower sizes were decreased and fewer units per blower were installed. The best practice is to install one blower for each unit. When more than one unit receives its air supply from the same blower, any change in conditions of fuel bed in one smelter which affects the air supply to that unit also affects the air supply to all other units on that same air line.

Alternating current motors have been used universally for powering these blowers. In one mill in which there are two units for each blower the writer has recommended the substitution of direct current motors and drum switches for the present constant speed a. c. motors. Such a practice would allow the normal fluctuating of the primary air delivery to satisfy varying conditions by means of a change in motor speeds. Present control of the primary air delivery is by means of exhaust dampers to relieve all air in excess of that required by the units. Practically constant horsepower is required at all times. Inasmuch as the horsepower increases directly with the speed any decrease in speed decreases the power consumption. Therefore, it seemed well to recommend the use of the variable speed motors.

Air Flow and Pressure Indicators

At this point it seems well to discuss the primary air flow and pressure indicators. It has been customary in practically all mills to use manometers, or u-tubes, to indicate air conditions. Air pressure is measured in inches of water and is interpreted to indicate volumes of air to the smelter. This practice is not only inaccurate but entirely misleading.

Pressure indicates resistance, not flow. Now air would flow through an entirely plugged pipe, but a high pressure could be built in the pipe, and the pressure gauge would indicate this pressure. It is absolutely impossible to run with any degree of uniformity with only a pressure gauge.

The writer believes that he is the first operator to make use of a differential gauge to show actual flow of air to the smelters. He installed an orifice in the main air line from the blower to the nozzles and connected tubes to either side of the orifice at proper distance from it. These tubes were connected to either side of a u-tube filled to a mark with water.

On such a gauge the differential head is read similarly to pressure on a pressure gauge. Neglecting differences in temperature and pressure of the primary air, the differential head indicates the actual flow of the air. The use of the differential gauge for indicating actual air flows and the use of the pressure gauge to indicate resistance or conditions in the fuel bed is the proper combination of gauges.

It is the desire of the writer that mill superintendents reading this article will install such a differential gauge on one unit and observe the possibility for improved efficiency at that unit.

The use of V belts over ordinary belts is gaining in favor because of the slippage with the latter.

The water pan smelter arch has been resultant, in a great many cases, in an elimination of the older smelter arch neck. Water cooled stack devices have been developed to transfer the hot smelter gases to the rotary. The smelter has been placed back closer to the rotary, and the ash falls from the rotary either directly into the smelter through openings in the arch or by means of spiral or chain conveyors, thereby eliminating much of the hand shoveling. Formerly, all the ash was shoveled into the furnace.

Because of the position of the firing doors hand-fed fuel beds usually are sloping from back to front with a considerable portion of the front walls exposed to the radiant heat from the top of the fuel bed. Because of this lack of protection the front walls burn out rapidly.

Ash Handling

Where the ash drops into a hole in the middle of the water pan arch, there is a more nearly even distribution of ash over the entire smelter area, thereby forming a better protection to the walls.

A development designed to eliminate hand shoveling of ash and the usual black ash pile is that of Mr. Waern. The water pan arch is maintained, but the stack affairs from the arch to the rotary have been replaced by one water walled enclosure through which the gases pass to the incinerator and through which the ash passes to the smelter. The incinerator discharge end is completely enclosed except for convenient openings in the front of this "uptake" to allow the liquor runner to see his ash and to allow some variation in "secondary" air supply.

This design has its merits. The usual pile of black ash is entirely eliminated. Screw conveyors are eliminated and cleaner operation is possible.

With this type of furnace it is necessary to produce the ash in the rotary at approximately the same rate as the ash is burned from the fuel bed. There is no storage pile; the ash falls directly into the smelter from the rotary.

Any variation in liquor quality affects the rate of ash manufacture which, in turn, influences the smelter fuel bed conditions. Weaker liquor results in a lesser rate of ash manufacture and a lowering of the fuel bed level. Any raising in liquor quality results in an increased rate of ash discharging into the furnace and a raising of fuel bed levels. On the one side there is perhaps a necessity for the use of wood to increase the rate of evaporation in the rotary, or the increase in fuel bed level in the furnace. On the other hand is the complete filling of the smelter to the incinerator lip, necessitating the "burning down" of the fuel bed.

To burn down the fuel bed the liquor feed into the rotary is entirely stopped, until the fuel bed level has dropped sufficiently to allow the continuance of normal operation.

This procedure results in the reduction of the incinerator liquor and ash to a dusty powder causing an increase in stack losses.

At this point it may be well to suggest that the use of weak liquor in the rotary to decrease the quantity of ash produced is not practical. Weak liquor causes fine ash which is troublesome at any time in this type of furnace.

These are actual operating conditions.

Under good conditions as to liquor density and fuel value, this type of enclosed firing is more efficient than the older methods. But, when there are fluctuations in liquor density to the rotary of much in excess of 1 deg. Be. at 60 deg. F. these aforementioned troubles occur. At such times the storage pile of ash would be very convenient.

Ash Characteristics

Regardless of the type of smelter arch or whether the furnace be hand-fed, conveyor-fed, or fed directly through holes through the arch or uptake, there are certain similar characteristics for all rotary-evaporated ash. The rotary action in all cases is the same. All rotaries are subject to the same types of effects from the same kind of causes.

Regardless of the type of blow pipes or arches or whether the furnace be fed in any of the above mentioned manners there are certain similar characteristics for all fuel beds from rotary-evaporated ash.

Resultant liquors from different woods differ in characteristics and "handle" differently in the incinerator and in the smelter. Poplar ash is finer than pine ash and becomes dusty; pine liquor has a tendency to "ring" the rotary. There are differences in characteristics caused by differences in liquor running by the various operators, but, in general, there are definite causes, rules for operation, and effects, for all rotaries and all liquors. The type of ash is dependent upon the wood, the liquor density, and quality, the gas temperature, the rotary speed, and the operator.

Good ash is similar to coke in appearance. It is nearly dry, yet not fine or dusty. It is rough and irregularly shaped and sized. Fine, dusty ash is caught in the gases and draft and results in excessive stack losses and poor smelter operation. Heavy, or wet, ash becomes sticky in the smelter and presents a high resistance to primary air flow. It easily plugs the air nozzles and causes lowered smelter efficiency.

All fuel beds of ash from rotaries must be "rodded" at close intervals to close the blow holes and eliminate the hardened, sticky, or arched areas.

The temperature of the gases from the smelter is dependent upon the mixture of the air with the carbon of the fuel bed. Excess air cools the gases. Air passing through the blow holes is excess air. Therefore, it is obvious that these holes must be kept closed.

It is absolutely necessary to rod all rotary-ash fed smelters at close intervals. These fuel beds do not smelt constantly uniformly, and it is necessary to rod into the spout openings very often to maintain a steady flow of smelt into the dissolving tank. In rooms running two or more units having three or more spouts it is customary to employ one man, a spout man, whose function it is to maintain a clear passageway for the smelt and to keep the spouts cleaned of all hardened portions of cooled smelt.

Liquor is fed into the back of the rotary through a water cooled feed pipe. As the liquor passes through the hot gases in the rotary the water is evaporated. It is discharged at the front end in a condition similar in appearance to coke.

Certain definite rules have been learned relative to ash making. Weak liquor or cold liquor "rings" a rotary and causes fine ash. Steady continuous feeding of liquor into the rotary cools the rotary at the point of introduction and rings are formed, damming the liquor oftentimes sufficiently to force the liquor into the combustion chamber rather than through the front of the rotary. A ring will cause fine ash because of the lack of liquor past the ring with a resultant complete evaporation and burning in the front section of the rotary. A broken ring causes a full smelter in the closed type or a liquor flood. These troubles usually may be controlled somewhat by closer liquor control.

Salt cake is fed into the smelter either in dry form with the ash or into the liquor in a mixing tank. Several dry feeders are in use, some employing a bucket device, some a timed screw device, and others a gravity-fed shaker pan. Probably the most efficient method is the mixing of the salt cake with the liquor.

Some mills feed each rotary with liquor from its own disc; others mix the liquor from all discs and feed from a common tank. This latter method eliminates some troubles in this manner. Some mills use feed pumps, either steam, centrifugal, or positive pressure pumps to supply the rotaries. Others use a gravity feed tank. This latter eliminates maintenance costs on motors and pumps and decreases power costs. The feed tank is efficient.

Waste Heat Boilers

For several years there has been a trend toward the use of boilers to recover the so-called "waste heat." The trend had its beginning when stack temperatures were high and heat was being wasted. Now the use of the boiler is definitely to secure a high efficiency from the vacuum evaporators.

In figuring the size of the boiler consideration of the vacuum evaporator efficiency must be taken. The usual recent practice is to install a 400 h.p. boiler for one 7 to 8 feet diameter smelter. The size of the boiler should be somewhat less than the maximum possible for flexibility in the process.

If any particular recovery unit without a boiler requires a certain type of liquor to the disc at from 25 to 26 degrees Baume at 60 deg. F., it is probable that the installation of a 400 h.p. would be approximately correct. Greater vacuum evaporator capacity would allow the increase in the size of the boiler.

Common belief was that steam production from recovery gases was free or something that was being wasted up the stack. This feeling was somewhat exaggerated. The true value of the boiler is to allow the vacuum evaporator to be run to its highest efficient capacity. As previously mentioned efficient disc evaporators have reclaimed all practically available heat from the combustion gases, the usual stack temperatures ranging from 212 to 225 deg. F. The boiler is not to reduce these temperatures.

In any particular furnace, under any certain combustion conditions a definite quality of liquor will be burned with a definite potential heat value for its gases. A definite density will be required to supply ash for fuel bed replacement and to supply the required heat for sufficient disc evaporation. If a boiler be inserted between the combustion chamber and the discs the boiler will decrease the heat available for disc evaporation, less evaporation will take place in the discs, and a liquor from the vacuum evaporator will be required correspondingly low in moisture content.

For example, if the boiler evaporates water at the rate of 10,000 pounds per hour the boiler outlet gases will evaporate 10,000 pounds of water less per hour in the discs, and the liquor to the discs must contain 10,000 pounds of water less per hour. The disc evaporator is required to do less work, the vacuum evaporator more. For the purpose of this study the boiler efficiency may be neglected. Therefore, the use of the boiler becomes a question of vacuum evaporator efficiency in contrast with the efficiency of the disc evaporator.

In either case, with or without a boiler, the density of the liquor to the rotary must be the same; the combustion chamber gas heat value will be the same. The same total evaporation of water from the liquor will be required.

It is said that an efficient vacuum evaporator should evaporate 3 pounds of water with one pound of steam. Low pressure steam of approximately 950 B.t.u. value (when the condensate heat value has been subtracted) is used, or 950 B.t.u. for three pounds of water. It will re-

quire 10,000 divided by 3 pounds of steam to evaporate the 10,000 pounds of water per hour which the use of the boiler has necessitated. This equals 3,333 pounds of steam, or converted to B.t.u. 3,333 × 950 or 3,166,350 B.t.u. Figuring the temperature of the water to be evaporated as 180 deg. F. and the disc efficiency as 80 per cent, it would require 10,000 × 1,000 divided by .80 or 12,500,000 TB.t.u.'s for the evaporation of the 10,000 pounds of water.

Therefore, by inserting the boiler and raising the vacuum evaporator requirements there has been a gain represented by the ration $\frac{12,500,000}{3,166,350}$ = plus or minus 3.95

It is probable that the figure 80 per cent is somewhat high for disc evaporation efficiency. A lower efficiency would raise the ratio of gain.

The question of boiler design is answered by steam requirements and available money. Water tube multiple drum boilers cost more, but are more desirable, than fire tube boilers, where steam at relatively high pressure is desired. Steam pressure in fire tube boilers is limited to probably 125 to 150 pounds. Several water tube boilers are in operation in recovery systems generating steam at 425 pounds pressure for turbine work. In such cases, 125 pound steam is bled from the turbines for digester cooking and general 125 pound steam purposes. The boiler design should be settled by the steam, or boiler, engineer.

Water cooled combustion chamber arches and boiler arches may be of the water pan type or tube type. If tubes be used, the entire arch should be pitched. Instead of headers return bends should be used. The header type may burn in spots because of hot pressure areas. In some cases it is best to connect these arches into the boiler.

The Waern Disc

The Waern disc is a comparatively new development consisting of a housing with two vertical, steel plate midwalls, riveted at the bottom and running parallel to the disc sides. These plates have openings on either end for liquor circulation. These plates act as separating walls and form a liquor circulation trough. There are two horizontal disc shafts mounted in the usual manner. There are two sets of discs mounted on each shaft. The discs, instead of being either flat or crimped and separate from each other, are connected by horizontal flat iron plates, staggered from the shaft to the peripheries. These discs, then, act similar to paddle wheels. Latest disc plates have been perforated to allow greater mass action of the hot gases on the liquor sheet. At the bottom and between and parallel to the two discs is a set of breaker bars mounted on a shaft for breaking any possible chunks or deposits. The hot gases are forced to pass through the sheets of liquor created by the throwing of the liquor by the discs. This type of disc has replaced many of the older flat or crimped discs.

With the use of any type of disc there is created a peculiarly obnoxious odor which has resulted in considerable complaint by people in communities in close proximity to the mill.

All previous paragraphs have dealt with the three stage processes of liquor recovery, the boiler being aside from the actual rejuvenation of the black liquor containing the sodium organic compounds to the required sodium carbonate smelt. The three stages are:

1. Disc for evaporation
2. Rotary for further evaporation and partial incineration, and
3. The smelter for further incineration, smelting, and salt cake reduction.

Cary-Wagner Process

There is another quite different process in use today which eliminates the ash pile and hand shoveling and eliminates the disc evaporator and rotary incinerator. It employs the spray principle. There are two types of units working along these lines, the Wagner furnace and the Cary-Wagner. The Wagner is a development of C. L. Wagner. The Cary-Wagner is a modification of the Wagner by William Cary.

While the actual design and operation of these two units differ somewhat in detail, the same principal is employed by each. In these furnaces the feeding of the liquor is continuous and nearly uniform.

The Cary-Wagner unit consists of two round steel-shelled smelters, separate from each other in the Smelting zone and discharging their hot gases through a common breeching to an eight hundred horsepower water tube boiler. The liquor of high density is sprayed through nozzles by compressed air. The spray is horizontal in direction from an opening at the side of one smelter across that smelter to the opposite smelter. Thus the sprays cross each other and fall into opposite fire pots. The salt cake is introduced in close proximity to the liquor globules.

Under the boiler is a slanting bridge wall which acts as a slide for the soda particles which have been baffled from the gases through the boiler. This slide leads back to the smelters.

A water or liquor gas scrubber is used.

The Wagner furnace consists of a single round smelter steel shelled, a 400 h.p. two drum and mud drum boiler, a combination dust chamber and combustion chamber, and either a Cottrell precipitator, bag filter, or wet scrubber.

The liquor is sprayed through a nozzle vertically downward through the center of the smelter arch by compressed air as the Cary-Wagner.

The salt cake is added at a point about 10 feet up from the smelter floor. A special salt cake measuring feeder is used. Air is used to blow this chemical to the center of the fuel bed.

These furnaces are approximately twenty feet in height from the smelter floor to the arch. This distance allows time for the complete change in the physical state of the liquor from a liquid spray to a dry ash at the bottom. The principle of mass action is employed.

In the spray processes fluctuations in liquor densities are compensated for by varying the air pressure at the liquor nozzle. The size of the liquor globules is regulated by the air pressure. A higher pressure decreases the size of the globule, while a lower pressure increases the size of the globules. As the size of the globule decreases the rate of evaporation increases.

The depth of these furnaces allows considerable flexibility in fuel bed levels, differences which would cause trouble with any smelter burning rotary-evaporated ash.

The draft at the smelter arch in all cases should be approximately the same regardless of the type of smelter. Fine ash in the usual 9 feet to 10 feet deep furnace would be blown by the primary air and carried in the combustion gases by the draft causing high stack losses and boiler plugging, if a boiler be used.

Because of the greater depth of both furnace and fuel bed in the spray type units it is possible to maintain fuel beds of finer, dryer ash. This lighter ash is easily maintained in a nearly constant condition as indicated by the nearly constant flue gas analysis.

The usual rodding of the fuel beds of the old type furnaces is eliminated in the new spray-type furnaces. There are no blow holes, no arched areas, and, consequently, no need for rodding. Smelting is uniformly continuous in contrast with the uneven flow from the old-type units. In

contrast with the spout man for the old smelters the operator for two new units also tends the spouts of those units. In one mill the operators use a piece of heavy wire for the purpose.

Because of the type of ash necessary for the old type unit fuel bed, and because of the absolute necessity for rodding this fuel bed, it seems impossible for one man to operate more than one furnace with any degree of efficiency.

It is usual in all old type units for ignited gases to pass outside the spout holes, sometimes in a gentle curl, more often in a decided blow. In the greater number of cases this is not caused by a too great air volume. Instead it is caused by the resistance of the heavy fuel bed to the primary air. A path of least resistance is followed by the air. That path often is with the smelt and through the smelt hole. Because of the light type of ash in the spray type unit and a decreased resistance to the air, no pressure areas are formed, and no ignited gases leave the spout holes.

Other Developments

The scrubber has been developed to reclaim the stack alkali losses. Various types have been used. Mr. Wagner uses a baffled tank containing several horizontal rows of hexahelix tile. The gases are blown into the bottom section against three consecutive sets of baffles, through three rows of hexahelix tile and are discharged finally up the stack. Two horizontal rows of showers at the sides of the tank present a screen of weak green liquor to the path of the gases. At the top another row of shower nozzles scrub the gases. The liquid drains through the bottom into a storage tank to be recirculated. The resultant liquid may be pumped to the dissolving tank or to the black liquor prior to its introduction into the evaporator.

The electric precipitator has been used (in soda mills). This is a very efficient method, but the costs probably would prove to be prohibitive for most pulp mills. This method depends on the natural electrical charge held by the particles of sodas and the attraction for these particles by a definite opposite charge by the precipitator.

The bag filter has been used (also in a soda mill) with some success. The temperature of the gases to the bag filter must be maintained within relatively close limits for obvious reasons. If the temperatures are too high, the bags will burn; if the temperatures become too low, the dew, or condensing, point will be reached, and the bags will become wet. To control the temperatures a gas cooler is used. This is similar to a fire tube boiler. The gases pass through the tubes and the controlling water is outside. Air actuated water valves are operated by a thermostat control.

The bag filter does very good work, when the conditions remain nearly constant. They would not be practical, probably, in connection with the usual disc rotary, and smelter process, because of the abrupt fluctuations in temperatures and gas analyses.

The tank wet spray scrubber probably is best for sulphate work. The wet scrubber has not been sufficiently tried in soda practices to demonstrate whether it is efficient.

Draft Sources

No mention has been made of draft sources. In some mills stacks are used with dampers for control; other mills use fans. If fans be used, there should be one for each unit. Proper draft is of great importance. It is absolutely necessary, for efficient operation, to be able to vary the draft to compensate for fluctuations in resistances throughout the unit as well as to vary secondary air conditions. This is particularly desirable with the rotary type unit. To change the draft is to change the secondary air in these old units and, consequently, the secondary combustion and the rate of ash manufacture in the rotary.

For the purpose of varying the draft stacks, or fans powered by steam turbines, steam engines, or direct current motors, are being used successfully in the various mills. Where motors are used, positive types of transmission should be used to prevent belt slippage. The writer prefers a good type silent chain.

Rotary-Evaporated Ash Units vs Spray-Type Units

In general the differences between the rotary-evaporated ash units and the new spray-type units are as follows:

1. The ash manufacture is a batch process in the old type unit; in the new type it is continuous.
2. The old fuel bed requires considerable attention by the operator; the new type fuel bed requires no attention except observation.
3. One operator operates one old type smelter; one operator operates two spray type smelters and tends both spouts.
4. The old type smelter requires one spout man for two or three smelters; there is no spout man for the new units.
5. Where boilers are used in the old type units, the steam flow fluctuates considerably (especially is this true in the closed, or uptake, type unit); the steam flow from the stray type is nearly constant.
6. Relatively small changes in liquor quality effects the entire operation of the old type unit (a change of from one to two degrees in density of liquor to the rotary will cause considerable trouble); considerably greater changes in liquor quality in the case of the spray type smelters can be compensated for by adding to the spray nozzle air pressure.
7. Considerably quicker start ups and shut-downs are possible with the new units than with the old.
8. In general there is a greater flexibility and ease of operation with the spray type furnace than with any furnace fed with rotary made ash.

Each Type Actually Operated

These observations have resulted from close work with each of the types mentioned. The writer studied closely each of these types of units and actually operated each type for extended periods.

Harry F. Lewis Appointed

Dr Harry F. Lewis of the Institute of Paper Chemistry, Appleton, Wis., has been appointed chairman of the newly formed Fundamental Research Committee of the Technical Association of the Pulp and Paper Industry.

This committee has been assigned to the Research and Development Division of which C. E. Curran of the U. U. Forest Products Laboratory, Madison, Wis., is general chairman.

The committee will present the results of fundamental research, and study the organization and administration of research departments in the pulp and paper industry.

One company after another in the more progressive group in the industry has established research departments and many are working on fundamental problems on which it is desirable to get widespread discussion. A number of papers based on such problems have been presented at TAPPI meetings under the sponsorship of the Research and Development Division. Such papers will hereafter be directly sponsored by the Fundamental Research Committee. The personnel of the committee will be announced later.

United States Patents On Papermaking

Second Quarter, 1932

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI.

NOTE—Printed copies of the patents listed below may be obtained at ten cents ($0.10) each from the Commissioner of Patents, Washington, D. C. Stamps and personal checks are not accepted. The execution of orders will be considerably accelerated if coupons are used.

APRIL 5, 1932

1,852,006. Thick butt shingle and process of making same. Harry Allen Emery, assignor to The Barrett Company, New York, N. Y. Filed Dec. 15, 1928. 17 claims. (Cl. 92-41).

1,852,011. Method and apparatus for producing cellulose from lignified material. Raymond S. Hatch, assignor to Ligno-Cellulose Corporation, New York, N. Y. Filed Apr. 8, 1931. 12 claims. (Cl. 92-11). A modified sulphite process, with external condensation of the relief vapors.

1,852,018. Stiffener for boots and shoes and method of making the stiffener. William Jackson Lund, assignor to United Shoe Machinery Corporation, Paterson, N. J. Filed Apr. 23, 1929. 10 claims. (Cl. 154-2).

1,852,026. Paper valve bag and method of making the same. John C. Redington, assignor to St. Regis Paper Company, New York, N. Y. Filed Jan. 28, 1929. 8 claims. (Cl. 93-35).

1,852,158. Paper manufacture. Charles S. Hamm, assignor to Mead Paperboard Corporation, Wilmington, Del. Filed Apr. 10, 1930. 8 claims. (Cl. 92-11). Deciduous woods are extracted to remove a substantial proportion of the soluble content and then digested with a normal sulphite and an alkaline material.

1,852,177. Paper making machinery. Homer D. Martindale, assignor to The Black-Clawson Company, Hamilton, Ohio. Filed July 16, 1930. 8 claims. (Cl. 92-22). Breaker.

1,852,264. Method of dry distilling waste liquors from the soda pulp manufacture. Erik Ludvig Rinman, Djursholm, Sweden. Filed Oct. 5, 1929. 7 claims. (Cl. 202-34). The waste liquor is evaporated with barium hydroxide and the mass dry distilled.

1,852,394. Method for cutting web material. Logan A. Becker and John M. Munson, assignors to The Dobeckmun Company, Cleveland, Ohio. Filed Nov. 17, 1930. 5 claims. (Cl. 93-35). Method of forming tubular blanks.

1,852,451. Method and apparatus for making laminated fibrous blanks. Ernest P. Everett, Yonkers, N. Y. Filed Sept. 15, 1926. 18 claims. (Cl. 154-2).

1,852,576. Machine for the manufacture of paper articles. Alden Hudson, assignor to David William Hudson, Green Bay, Wis. Filed Apr. 15, 1929. 24 claims. (Cl. 270-82). Web feeder, web cutter and web folder.

1,852,637. Recovery of sulphur from roaster gases. Raymond F. Bacon, Bronxville, N. Y. Filed May 9, 1927. 5 claims. (Cl. 23-226). Oxidation of sulphide-bearing material to produce a mixture of gases containing sulphur dioxide and oxygen and then treating with sulphur to change the oxygen to sulphur dioxide.

1,852,726. Cutting machine for paper and the like. Karl Stegmann, assignor to Johne-Werk Grafische Maschinen-Aktiengesellschaft, Bautzen, Germany. Filed Dec. 16, 1925. 22 claims. (Cl. 164-48).

APRIL 12, 1932

1,853,064. Felt cleaning apparatus. Eugene H. Lansing, Waterford, N. Y. Filed Apr. 4, 1929. 8 claims. (Cl. 92-50).

1,853,068. Paper making machinery. William H. Millspaugh, Sandusky, Ohio. Filed Feb. 16, 1931. 9 claims. (Cl. 92-43). Vacuum forming rolls, making wire trained about each roll and means for transfering a web formed on one wire onto a web formed on the other wire.

1,853,102. Barrel-making machine and method. Alexander R. Walton, Lakewood, Ohio. Filed Mar. 31, 1927. 13 claims. (Cl. 92-39). Method of forming non-plane surfaced boards, slats or the like from pulped fibrous material.

1,853,185. Method and apparatus of forming thick sheets from pulp. John A. Wiener, assignor to Masonite Corporation, Laurel, Miss. Filed May 24, 1927. 19 claims. (Cl. 92-39). Pulp on a flat wire screen is covered with an impervious apron and air is exhausted from beneath said wire screen.

1,853,191. Paper receptacle. Henry Benke, Pleasantville, N. Y. Filed May 17, 1929. 2 claims. (Cl. 93-36). Method of forming on a mandrel.

1,853,267. Driving means for rotary knives of paper machines. Daniel R. Francis, assignor to The Waterbury Tool Company, Waterbury, Conn. Filed Dec. 27, 1928. 2 claims. (Cl. 164-68).

1,853,310. Plaster base. George E. Land, assignor to Mary Haines Marks, Sewickley, Pa. Filed May 1, 1929. 10 claims. (Cl. 72-116). Paper backing sheet having self-sustaining corrugation formed therein.

1,853,349. Form for felting fibrous receptacles. Richard E. Hall, assignor to Arvey-Ware Corporation, a Corporation of Delaware. Filed Feb. 16, 1931. 4 claims. (Cl. 92-54).

1,853,591. Crinkling machine. Frank G. Wikstrom, assignor to Bartlett Arkell, New York, N. Y. Filed June 26, 1928. 1 claim. (Cl. 92-69).

1,853,625. Fourdrinier machine. Lawrence L. Lapeyrouse, Mobile, Ala. Filed Aug 16, 1930. 12 claims. (Cl. 92-44).

1,853,698. Method of and means for coupling fiber conduits. Howard Parker, assignor to Brown Company, Berlin, N. H. Filed Aug. 19, 1927. 2 claims. (Cl. 285-137). A fiber conduit having a fiber collar of substantial length on an end portion thereof and means for fastening collar to end portion.

1,853,774. Paper manufacture. Arthur E. Millington, Portland, Ore. Filed Nov. 20, 1929. 2 claims. (Cl. 92-20). Chips of a predetermined size are subjected to a softening operation, then passed through a fiber separator and a reducing mill.

1,853,822. Wall covering. Joseph Krauss, assignor to New Brick Corporation, Pittsburgh, Pa. Filed Jan. 22, 1931. 12 claims. (Cl. 154-45.9). Backing board of an uninterrupted sheet of composition.

1,853,823. Wall covering. Joseph Krauss, assignor to New Brick Corporation, Pittsburgh, Pa. Filed Jan. 22, 1931. 10 claims. (Cl. 154-45.9). A composition backing board.

1,853,824. Wall covering. Joseph Krauss, assignor to New Brick Corporation, Pittsburgh, Pa. Filed Mar. 9, 1931. 16 claims. (Cl. 154-45.9). Backing board having a metallic mesh secured to its face and a block of plastic material cast thereon.

1,853,849. Method and means for extracting air from paper stock. Judson A. De Cew, Mount Vernon, N. Y. Filed July 7, 1930. 7 claims. (Cl. 92-20). Diluted material from paper machine screen is passed into a tank under vacuum and pumped back to the flow box.

1,854,053. Method and machine for perforating suction-roll shells. William H. Millspaugh, assignor to The Paper and Textile Machinery Co., Sandusky, Ohio. Filed Oct. 15, 1926. 21 claims. (Cl. 77-64). Machine for drilling a cylindrical shell.

APRIL 19, 1932

1,854,191. Apparatus for drying sheet material. Harry E. Holcomb, assignor to Fiberfraks, Inc., New York, N. Y. Filed June 1, 1929. 5 claims. (Cl. 34-48). Use of an open liquid metal bath, the sheet being passed across the top and out of direct contact.

1,854,192. Process and apparatus for drying and impregnating sheet material. Harry E. Holcomb, assignor to Fiberfraks, Inc., New York, N. Y. Filed June 1, 1929. 4 claims. (Cl. 91-70). Bath of asphalt or the like is maintained at a temperature above the boiling point of the liquid to be removed.

1,854,217. Envelope machine. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed Nov. 15, 1928. 8 claims. (Cl. 93-61).

1,854,230. Manufacture of waterproof tubing from cellulose pulp. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Sept. 28, 1929. 1 claim. (Cl. 92-41).

1,854,297. Method of manufacturing paper sipstraws. Karl E. Garling, Newark, N. J. Filed Mar. 12, 1931. 5 claims. (Cl. 93-94).

1,854,331. Producing pure cellulose from cellulosic raw materials. Rene Dosne, assignor to Canadian International Paper Company, Montreal, Quebec, Canada. Filed Aug. 26, 1929. 12 claims. (Cl. 92-11). Mercerized pulp is treated with sulphur dioxide solution.

1,854,341. Press for fiber boards. Henri P. L. Laussucq, assignor to Birdsboro Steel Foundry and Machine Company, Birdsboro, Pa. Filed Mar. 19, 1931. 36 claims. (Cl. 92-39).

1,854,356. Machine for refining paper and pulp. Ludwig H. Wessel and Oscar E. Larson, assignor to The Hermann Manufacturing Company, Lancaster, Ohio. Filed May 17, 1927. 7 claims. (Cl. 92-27). Sleeve supporting device.

1,854,414. Machine and process for coating fabric or cloth with porous paper pulp. Lester E. Milkey, assignor to The Cellulo Company, Sandusky, Ohio. Filed May 14, 1928. 25 claims. (Cl. 92-41).

1,854,427. Air-porous paper and process of making same. Frederick Riebel, Jr., assignor to Air-Way Electric Appliance Corporation, Toledo, Ohio. Filed July 29, 1930. 5 claims. (Cl. 92-38). Paper, having its fibers meshed to leave interstices impervious to particles the size of wheat flour.

1,854,428. Method of removing malodorous gases formed in the sulphate and soda pulp manufacture. Bror Natanael Segerfelt, Bohmisch Krumau, Czechoslovakia. Filed Feb. 13, 1930. 8 claims. (Cl. 23-2). Gases are brought to their dew-point and treated with hydrocarbons of the terpene and camphor groups.

1,854,509. Calender roll filling. James Fish, assignor to Henry Philip Shopneck, Dorchester, Mass. Filed May 11, 1929. 2 claims. (Cl. 92-77). A wide, fibrous substantially cellulosic midsection and comparatively narrow sections of heat-resistant material at or near the ends.

1,854,557. Preparation and preservation of fiber. Treadway B. Munroe and Elbert C. Lathrop, assignors to The Celotex Company, Chicago, Ill. Filed Nov. 29, 1929. 10 claims. (Cl. 92-3). Method of storing bagasse.

1,854,652. Drum type mill for paper and pulp manufacture. Ulrich Kirchner, Biberach-on-Riss, and Gerald Strecker, Darmstadt, Germany. Filed Apr. 7, 1930. 9 claims. (Cl. 92-26).

1,854,872. Manufacture of sheets or slabs. Charles A. Upson, assignor to The Upson Company, Lockport, N. Y. Filed Jan. 12, 1928. 4 claims. (Cl. 154-1). Machine for forming sheets from plastics.

1,854,881. Agitator. Joseph E. Bond, Appleton, Wis. Filed Apr. 8, 1929. 6 claims. (Cl. 92-37).

1,854,920. Bark peeling machine. Friedrich Baumbach, assignor to Zellstoffabrik Waldhof, Mannheim-Waldhof, Germany. Filed July 27, 1929. 4 claims. (Cl. 144-208).

1,854,956. Paper drier. Sidney A. Reeve, assignor to Beloit Iron Works, Beloit, Wis. Filed Mar. 17, 1930. 30 claims. (Cl. 92-38). Combination with a paper machine of a substantially air-tight housing completely enclosing both the wet and dry ends thereof.

1,855,041. Method of manufacturing tubes, containers, cups, and the like. Andrew Bodony, New York, N. Y. Filed Apr. 23, 1930. 4 claims. (Cl. 93-94).

1,855,161. Composite insulating board. George R. Wyman, assignor to Bird and Son, Inc., East Walpole, Mass. Filed Oct. 12, 1928. 4 claims. (Cl. 154-45.9).

APRIL 26, 1932

1,855,216. Apparatus for making paper cans and the like. Raymond A. Bennett, assignor to The Boothby Fibre Can Company, Boston, Mass. Filed June 13, 1927. 6 claims. (Cl. 93-39).

1,855,251. Core for paper rolls. George B. Marzolf, assignor to Farwell Ozmun Kirk and Co., St. Paul, Minn. Filed Dec. 12, 1929. 8 claims. (Cl. 242-68).

1,855,332. Method for purification and bleaching of cellulosic materials. Charles A. Blodgett, assignor to Eastern Manufacturing Company, South Brewer, Me. Filed Feb. 16, 1926. 12 claims. (Cl. 8-2). Combination of an acid reducing and a reducing bleaching agent.

1,855,435. Paper making machine. Harrison R. Williams, New York, N. Y. Filed Feb. 26, 1930. 13 claims. (Cl. 92-71). Web carrying roll, heated hollow shoe cooperating therewith to iron the web and means for applying shoe to web under pressure.

1,855,577. Debarking machine. Arthur M. Kirkwood, assignor to Log Debarking and Sizing Corporation, Portland, Ore. Filed May 2, 1929. 10 claims. (Cl. 144-208).

1,855,826. Mold for fiber sheets. Francis S. Farley and Hugo Felix Walter, assignors to Daniel Manson Sutherland, Jr., Morrisville, Pa. Filed Nov. 19, 1930. 5 claims. (Cl. 92-62).

1,855,842. Side flap folding means for envelope machines. Abraham Novick, assignor to F. L. Smithe Machine Co., Inc., New York, N. Y. Filed May 19, 1930. 14 claims. (Cl. 93-62).

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1,856,067. Transparent foils of paper, fabric, webs and the like. Viktor Bausch and Kurt Frenzel, Berlin, Germany. Filed Apr. 3, 1928. 6 claims. (Cl. 91-68). Paper impregnated with a 30-50% solution of gelatin containing an agent adapted to reduce viscosity.

1,856,081. Cylinder paper machine. Emil A. Peterson and William James McGinnis, assignors to Valley Iron Works Company, Appleton, Wis. Filed Apr. 18, 1927. 8 claims. (Cl. 92-43). Cylindrical forming screen, flow means for directing a defined flow of paper stock on upper part of screen, etc.

1,856,114. Manufacture of fiber article containing regenerated cellulose. George A. Richter and Milton O. Schur, assignors to Brown Com-

pany, Berlin, N. H. Filed Nov. 7, 1930. 9 claims. (Cl. 92-40).

1,856,118. Conveying system and apparatus for pulp wood. John Stadler, Montreal, Canada. Filed Jan. 2, 1930. 8 claims. (Cl. 214-10). Pulpwood stacking and reclaiming system.

1,856,176. Method of and apparatus for screening paper pulp. Edward J. Trimbey, Glens Falls, N. Y. Filed Sept. 6, 1928. 17 claims. (Cl. 92-34). Pulp screen.

1,856,267. Method of forming box parts. Johannes Schmiedel, assignor to the Firm "Universelle" Cigarettenmaschinen-Fabrik J. C. Müller and Co., Dresden, Germany. Filed Feb. 8, 1930. 7 claims. (Cl. 93-56).

1,856,347. Fourdrinier machine. Edward J. McDonnell, Groveton, N. H. Filed Dec. 20, 1930. 4 claims. (Cl. 92-44). An extended table beneath the wire.

1,856,450. Pulp strainer. Theodore E. Xistric, assignor to Valley Iron Works Company, Appleton, Wis. Filed May 31, 1930. 3 claims. (Cl. 92-30).

1,856,453. Method of treating fibrous materials. Thomas W. Bacchus, assignor to Hercules Powder Company, Wilmington, Del. Filed Sept. 23, 1930. 2 claims (Cl 92-7) A mixture of fibrous material and treating solution is forced through a passage, the inlet end of which is heated.

1,856,474. Container Albert S. Ethridge, assignor to Hummel and Dowing Co., Milwaukee, Wis. Filed Sept. 17, 1930. 7 claims. (Cl. 229-45). Fiberboard container.

1,856,475. Metal impregnated fiber article and process of making same. Meyrl M. Frost, assignor to Durowood Industries Incorporated of Detroit, Detroit, Mich. Filed Mar. 16, 1931. 6 claims. (Cl. 92-21).

1,856,558. Process of treating waste sulphite liquor. Guy C. Howard, Wausau, Wis. Filed Mar. 12, 1930. 18 claims. (Cl. 252-7). Caustic lime is added to precipitate calcium sulphite.

1,856,567. Process of decomposing vegetable fibrous matter for the purpose of the simultaneous recovery both of the cellulose and the incrusting ingredients. Theodor Kleinert and Kurt Tayenthal, Vienna, Austria. Filed Oct. 29, 1930. 8 claims. (Cl. 92-9). A mixture of water and alcohol is used above 150 degrees C.

1,856,570. Cement product. John W. Ledeboer, assignor to Ambler Asbestos Shingle and Sheathing Company, Ambler, Pa. Filed Aug. 29, 1930. 2 claims. (Cl. 92-67). A slab or sheet of fiber-cement composition.

1,856,603. Plaster surfaced building board. Charles A. Upson, assignor to The Upson Company, Lockport, N. Y. Filed July 17, 1929. 2 claims. (Cl. 154-45.9).

1,856,633. Backing for plastic material. Francis W. Harney, assignor to The Upson Company, Lockport, N. Y. Filed Jan. 25, 1930. 12 claims. (Cl. 154-2). Cellular body with liner one face, the said liner being removed to expose cells of said cellular body.

1,856,659. Envelope making machine. Ernest Sandfanander, assignor to H. P. Andrews Paper Company, New York, N. Y. Filed May 28, 1928. 2 claims. (Cl. 164-28).

1,856,744. Process and apparatus for coating. Richard P. Carlton, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Nov. 10, 1928. 8 claims. (Cl. 91-68). Method of making an abrasive article.

1,856,777. Eccentric for shaking mechanism. Martin J. Mollen, assignor to Nekoosa-Edwards Paper Company, Port Edwards, Wis. Filed Apr. 8, 1931. 10 claims. (Cl. 92-45).

1,856,853. Paste fountain. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed July 10, 1929. 4 claims. (Cl. 91-49).

1,856,932. Method and apparatus for making plaster board. Harris W. Shaw, assignor to National Gypsum Company, Buffalo, N. Y. Filed Oct. 1, 1929. 14 claims. (Cl. 154-1).

1,856,936. Plaster board apparatus. John J. Turner, assignor to National Gypsum Company, Buffalo, N. Y. Filed Aug. 11, 1928. 7 claims. (Cl. 154-1).

1,856,946. Fiber product and process of making same. William A. Darrah, Chicago, Ill. Filed Feb. 24, 1930. 18 claims. (Cl. 92-21). Felted mass of fibers cemented by a precipitated emulsion of drying oil.

1,856,986. Adhesive sheeting. Richard Gurley Drew, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed July 27, 1925. 11 claims. (Cl. 154-50). Paper backing coated with adhesive.

1,857,002. Paper tube forming machine. Gordon V. Plante, assignor to The National Paper Company, Atlanta, Ga. Filed Apr. 7, 1928. 4 claims. (Cl. 93-81).

1,857,010. Window bag. True M. Avery, assignor to Union Bag and Paper Corporation, Hudson Falls, N. Y. Filed June 30, 1930. 2 claims. (Cl. 229-53).

1,857,021. Container. William P. Hicks, assignor to Sefton National Fibre Can Co., Maplewood, Mo. Filed July 28, 1930. 2 claims. (Cl. 229-5.5).

1,857,091. Paper roll hoisting plug. Frederick von der Horst, assignor to The Tribune Company, Chicago, Ill. Filed July 23, 1931. 5 claims. (Cl. 294-82).

1,857,100. Absorbent paper. Frank H. McCormick and George L. Schwartz, assignors to The Celastic Corporation, Arlington, N. Y. Filed Aug. 25, 1931. 35 claims. (Cl. 92-13).

1,857,113. Machine for making envelopes. Eugene Conti, assignor to Alexander Herz, New Rochelle, N. Y. Filed July 1, 1930. 12 claims. (Cl. 93-19).

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1,857,222. Paper drier. John Warren Vedder, Worcester, Mass. Filed Feb. 27, 1930. 2 claims. (Cl. 34-48). Driving gears.

1,857,275. Method of making paper. Dozier Finley, assignor to Toledo Scale Manufacturing Co., Toledo, Ohio. Filed Apr. 28, 1930. 1 claim. (Cl. 92-46). Continuous weighing machine and method of adjusting the speed of the machine.

1,857,316. Manufacture of wall-board and the like. Arthur E. Millington, assignor to The United States National Bank of Portland, Oreg. Filed May 26, 1927. 9 claims. (Cl. 92-13). Wall board from saw mill waste.

1,857,317. Fiber liberation. Arthur E. Millington, assignor to The United States National Bank of Portland, Oreg. Filed Feb. 21, 1928. 10 claims. (Cl. 92-7). Method for injection of liquid into rotating digester at each rotation and allowing part of digester liquid content to escape at same time.

1,857,432. Felt. Philip W. Codwise, assignor to Certain-teed Products Corporation, New York, N. Y. Filed July 8, 1925. 1 claim. (Cl. 92-13). Method of making felt from wood chips.

1,857,433. Felt. Philip W. Codwise, assignor to Certain-teed Products Corporation, New York, N. Y. Filed Aug. 19, 1926. 17 claims. (Cl. 92-3). Method of digesting wood for making felts.

1,857,496. Paper article and method of making the same. Albert L. Clapp, Danvers, Mass. Filed July 16, 1926. 7 claims. (Cl. 18-47.5). Asbestos-cellulose paper is impregnated with sodium silicate and coated with inorganic filler.

1,857,497. Method of surface finishing paper or fiber board and product of same. Albert L. Clapp, Danvers, Mass. Filed Feb. 14, 1927. (Cl. 92-40). Use of sodium silicate.

1,857,498. Treatment of pulp articles and material therefor. Albert L. Clapp, Danvers, Mass. Filed Sept. 27, 1928. 7 claims. (Cl. 91-70). Pulp is impregnated with sodium silicate containing kieselguhr.

1,857,519. Method of splicing paper cores, tubes and the like. Richard Spry, Port Alfred, Quebec, Canada. Filed Apr. 26, 1930. 2 claims. (Cl. 93-94).

1,857,695. Process for preparing resinous wood for digestion by the bisulphite process. Gotthard Rosen, assignor to La Cellulose Rosen, Societe Anonyme, Luxemburg, Luxemburg. Filed May 16, 1931. 12 claims. (Cl. 92-13). Pretreatment with milk of lime.

1,857,829. Shower pipe. Seth Wheeler, Jr., Albany, N. Y. Filed Feb. 19, 1930. 4 claims. (Cl. 92-50).

1,857,985. Process of manufacturing various products from cornstalks, sugar cane and similar vegetable material. Gustav Taube, assignor of part to Israel B. Brodie, New York, N. Y., Sidney Musher, Baltimore, Md., and Boris M. Rubin, Seagate, N. Y. Filed Aug. 30, 1930. 3 claims. (Cl. 92-13).

1,858,131. Apparatus for and method of making deckled edged paper. George W. Bicking, Washington, D. C. Filed Apr. 17, 1931. 18 claims. (Cl. 92-38).

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R 18,463. Envelope machine. Harold J. Goss, assignor to The International Paper Box Machine Company, Nashua, N. H. Original No. 1,765,419, dated June 24, 1930. Application for reissue filed Aug. 22, 1931. 34 claims. (Cl. 93-62).

1,858,375. Machine for making double-faced corrugated paper board. Louis H. Schroeder and Joshua Wagner, assignors to Progressive Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y. Filed Apr. 8, 1926. 4 claims. (Cl. 154-32).

1,858,437. Reclaiming used vegetable parchment tympans. John R. Dufford, assignor to The Paterson Parchment Paper Co., Passaic, N. J. Filed Sept. 18, 1929. 7 claims. (Cl. 15-269). Method of removing ink without destroying parchmentized fibrous character of the surface.

1,858,522. Process of chemically treating and bleaching cellulose pulp. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed June 6, 1928. 7 claims. (Cl. 92-13) Pulp is treated with 0.5 to 1 per cent of caustic soda based on the weight of the air-dry pulp, washing and bleaching.

1,858,523. Process of chemically treating and bleaching cellulose pulp. George A. Richter and Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Aug. 16, 1929. 6 claims. (Cl. 8-2). Pulp is treated with dilute alkaline solution and then bleached.

1,858,545. Suction box lever for suction box. Hiland R. Farnsworth, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Mar. 26, 1928. 16 claims. (Cl. 92-53).

1,858,546. Yankee fourdrinier machine. Hiland R. Farnsworth, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Dec. 5, 1928. 3 claims. (Cl. 92-49).

1,858,591. Apparatus for making pulp. Rex W. Hovey, St. John, New Brunswick, Canada. Filed Nov. 3, 1928. 1 claim. (Cl. 92-7). Digester.

1,858,621. Paper folding machine. Charles H. Gunn, Burlingame, Calif. Filed Sept. 2, 1930. 10 claims. (Cl. 270-61).

1,858,655. Floor covering. Julian T. Baldwin, assignor to Sandura Company, Inc., Philadelphia, Pa. Filed Jan. 8, 1927. 5 claims. (Cl. 91-68). Fibrous material impregnated with resin and stable plasticizer.

1,858,680. Waterproofed heat insulating material. Allen B. Merrill, assignor to The B. F. Goodrich Company, New York, N. Y. Filed July 20, 1927. 4 claims. (Cl. 154-44). Matted vegetable fibers with waterproof film of vulcanized rubber.

1,858,859. Process of producing leather imitation, particularly an imitation of the so-called antique leather. Ernst Katz, Vienna, Austria. Filed June 29, 1928. 2 claims. (Cl. 91-68). Vegetable fibrous material is dressed with starch, calendered and colored.

1,859,014. Paper machinery. Harry Wright, Jr., assignor to The Mead Corporation, Dayton, Ohio. Filed Sept. 13, 1930. 6 claims. (Cl. 92-74). Scraping blade and finger guard.

1,859,224. Method of making rice straw pulp and apparatus therefor. Peter Swan, Portland, Oreg. Filed June 1, 1931. 4 claims. (Cl. 92-14). Straw is cooked with alkali for 40 min., shredded and passed through a rod mill where soda ash is added.

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1,859,325. Process and mechanism for forming hollow ware articles. Harry C. Ayerst, Seattle, Wash. Filed Aug. 25, 1930. 9 claims. (Cl. 92-56).

1,859,384. Process and apparatus for digesting fibrous materials. Thomas Leonidas Dunbar, Watertown, N. Y. Filed Apr. 21, 1930. 38 claims. (Cl. 92-11). Acid liquor is introduced into a digester while air is discharged to the atmosphere from the digester until acid gas appears.

1,859,414. Process of forming pulps. Earl P. Stevenson and Harry A. Buron, assignors to The Richardson Company, Lockland, Ohio. Filed May 31, 1929. 7 claims. (Cl. 92-21). Preparation of bituminous pulp.

1,859,508. Hydraulic felt conditioner or the like. John L. Harris, Thomson, N. Y. Filed May 14, 1930. 5 claims. (Cl. 92-50).

1,859,521. Protecting means for rolls of paper. Edward L. McDevitt, assignor to Frank F. Barham, Los Angeles, Calif. Filed Dec. 23, 1929. 2 claims. (Cl. 206-59). Protecting wrapping for a roll of paper.

1,859,838. Paper making machine. Thomas Downham Nuttall, assignor to Bentley and Jackson, Limited, Bury, England. Filed Oct. 3, 1930. 3 claims. (Cl. 92-38). A main driving shaft and a plurality of indriving shafts driven by said driving shaft.

1,859,841. Apparatus for the impregnation of hollow articles. Hendrik Jacobus Prins, Hilversum, Netherlands. Filed Dec. 30, 1929. 9 claims. (Cl. 91-43).

1,859,845. Treatment of wood for the production of pulp. John D. Rue, Sidney D. Wells and Francis G. Rawling, assignors to Arthur M. Hyde, Secretary of Agriculture of the United States. Filed Apr. 8, 1926. 30 claims. (Cl. 92-11). Wood is digested with sodium sulphite and sodium carbonate.

1,859,846. Wood pulp and process of making the same. John D. Rue, Sidney D. Wells and Francis G. Rawling, assignors to Arthur M. Hyde, Secretary of Agriculture of the United States. Filed Aug. 4, 1926. 10 claims. (Cl. 91-11). A neutral solution containing sodium sulphite and the sodium salt of a weakly ionized polybasic acid is used.

1,859,847. Pulped material and process of preparing the same. John D. Rue, Sidney D. Wells and Francis G. Rawling, assignors to Arthur M. Hyde, Secretary of Agriculture of the United States. Filed Aug. 4, 1926. 11 claims. (Cl. 92-11).

1,859,848. Production of fibrous pulp from vegetable materials. John D. Rue, Sidney D. Wells and Francis G. Rawling, Rue and Rawling assignors to Arthur M. Hyde, Secretary of Agriculture of the United States. Filed Sept. 3, 1926. 31 claims. (Cl. 92-11). Sodium carbonate and sodium sulphite are used.

1,859,853. Manufacture of wall board. George Miller Thomson, assignor to Gypsum, Lime and Alabastine, Canada, Limited, Paris, Ontario, Canada. Filed Mar. 10, 1930. 7 claims. (Cl. 154-1).

1,859,869. Combination box board machine. Walter B. Hadley, assignor to Kellogg-Hadley Corporation, Chicago, Ill. Filed Feb. 16, 1931. 2 claims. (Cl. 92-43).

1,859,888. Process of regenerating spent alkaline liquor to fresh acid cooking liquor. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Feb. 2, 1927. 7 claims. (Cl. 23-131). The organic matter is precipitated with sulphuric acid and then with sulphur dioxide.

1,859,889. Process of conditioning a tissue of cellulose fiber for conversion into cellulose deriva-

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aves and product of same. George A. Richter, Milton O. Schur and Royal H. Rasch, assignors to Brown Company, Berlin, N. H. Filed Mar. 10, 1927. 18 claims. (Cl. 260-146). A calendered, mercerized waterleaf tissue composed of cellulose fibers.

1,859,890. Beating process and apparatus for practicing same. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed Oct. 6, 1927. 17 claims. (Cl. 92-24). Stock is removed during beating, cooled and returned to beater.

1,859,891. Method of effecting refining reactions of cellulosis pulps. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed May 18, 1931. 16 claims. (Cl. 92-7). A portion of the water of the refining liquor is frozen out to increase the chemical concentration.

1,859,986. Cardboard machine. Arthur B. Saunders, assignor to Johns-Manville Corporation, New York, N. Y. Filed Mar. 3, 1930. 11 claims. (Cl. 92-43).

1,860,043. Printers' ink and in the process of manufacturing same. Matthias Ludwigsen, Stockholm, Sweden. Filed Sept. 24, 1928. 5 claims. (Cl. 134-35). Waste sulphite liquor, alkali and phosphoric acid are used as vehicle.

1,860,060. Method of making shingles. George B. Stryker, Jr., assignor to The Weatherproof Products Company, Memphis, Tenn. Filed July 31, 1928. 2 claims. (Cl. 18-60).

1,860,097. Waterproof and fireproof fibrous product and process of making the same. Wilford Bacon Hoggatt, New London, Conn. Filed Mar. 31, 1930. 15 claims. (Cl. 92-31). The article is fireproofed, dried and then waterproofed.

1,860,134. Fireproof fiber product. Roger B. Brown, assignor to Daniel Manson Sutherland, Jr., Morrisville, Pa. Filed Sept. 10, 1930. 4 claims. (Cl. 92-21). Water-insoluble non-hydrolyzing borate is used.

1,860,244. Paper bag. Herbert A. Grant, assignor to Miller Tompkins and Company, New York, N. Y. Filed Apr. 16, 1930. 3 claims. (Cl. 229-55). Multi-ply bag of parchment kraft paper coated with wax and printing ink.

1,860,303. Wire applying mechanism for Fourdrinier paper making machines. Joseph A. White, assignor to The Moore and White Company, Philadelphia, Pa. Filed Dec. 4, 1930. 20 claims. (Cl. 92-44).

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1,860,386. Method and apparatus for bottoming bags. Andrew Ellison Currier, assignor to Cornell Bag Corporation, New York, N. Y. Filed Aug. 28, 1930. 9 claims. (Cl. 93-27).

1,860,431. Process of producing low-viscosity cellulose fiber. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed June 2, 1928. 33 claims. (Cl. 92-9).

1,860,432. Process of lowering the solution viscosity of cellulose fiber. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Aug. 22, 1928. 21 claims. (Cl. 260-146).

1,860,465. Briquette and process for making the same. Gustav Komarek, assignor to Berwind Fuel Company of Delaware, Chicago, Ill. Filed Dec. 2, 1929. 15 claims. (Cl. 44-6). Uses sulphite liquor.

1,860,466. Pulp board. Gustave Landt and Hubert Leopold Becher, assignors to The Agasote Millboard Company, Fanwood Road, N. J. Filed Aug. 13, 1924. 7 claims. (Cl. 92-21). Use of 30-50 parts of montan wax, by weight, to 100 parts of fiber.

1,860,477. Digester. Carl F. Richter, assignor to Stebbins Engineering and Manufacturing Company, Watertown, N. Y. Filed Oct. 28, 1931. 7 claims. (Cl. 92-19). The digester is lined with carbon bricks.

1,860,536. Carton. Herman L. Greve, assignor to International Mailing Tube and Wrapper Company, Brooklyn, N. Y. Filed Feb. 21, 1929. 2 claims. (Cl. 229-31).

1,860,570. Manufacture of pulp, etc. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed July 2, 1926. 17 claims. (Cl. 92-11).

1,860,748. Bag making machine. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Oct. 17, 1929. 6 claims. (Cl. 93-8).

1,860,755. Apparatus and process for production of pulp. Jerry W. Stevens and William H. Kenety, assignors to Chemipulp Process, Inc., Watertown, N. Y. Filed Jan. 27, 1928. 7 claims. (Cl. 92-11). Method of relieving sulphite digesters.

1,860,803. Production of pulp, etc. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed July 3, 1926. 11 claims. (Cl. 92-11).

1,860,836. Diffuser. Antone Gustin, assignor to Continental Paper and Bag Corporation, New York, N. Y. Filed Oct. 1, 1929. 5 claims. (Cl. 92-7). Diffuser for draining the digesting liquid from wood pulp and for washing the pulp.

1,860,845. Paper machine. Isaac Stern and Joseph Huether, assignors to S. and S. Corrugated Paper Machinery Co., Inc., Brooklyn, N. Y. Filed Nov. 27, 1923. 17 claims. (Cl. 93-58).

1,860,848. Manufacture of pulp, etc. Linn Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed July 3, 1926. 10 claims. (Cl. 92-11).

1,860,984. Envelope machine. William Bodge, assignor to Leo Stone, Brockton, Mass. Filed May 8, 1931. 6 claims. (Cl. 93-63).

1,861,037. Mechanism for slitting and winding paper and metal ribbons into coils. Chester H. Thordarson, assignor to Thordarson Electric Manufacturing Company, Chicago, Ill. Filed May 29, 1930. 5 claims. (Cl. 164-65).

1,861,044. Method of making composite fabrics. Joseph W. Ballard, assignor to Griswoldville Manufacturing Company, Griswoldville, Mass. Filed Oct. 24, 1930. 5 claims. (Cl. 92-41).

1,861,184. Method of converting liquid paper pulp into a consistent mass suitable for storage, etc., or into bales for shipment. Richard T. Lang, assignor to American Voith Contact Company, Incorporated, New York, N. Y. Filed Nov. 13, 1929. 2 claims. (Cl. 92-1).

1,861,374. Winding machine for rolling roofing paper. Henry Randolph Wood, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Oct. 10, 1928. 3 claims. (Cl. 242-55).

1,861,381. Method of collecting and classifying different kinds of solids suspended in a liquid. Bigelow Crocker, Fitchburg, Mass. Filed Apr. 17, 1930. 1 claim. (Cl. 92-13). Process for separating particles of impurities from paper stock fibers suspended in water.

1,861,407. Bituminous mixture. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed July 30, 1925. 5 claims. (Cl. 106-23). Road oils and rubber latex.

1,861,408. Constructional material. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed Aug. 15, 1927. 2 claims. (Cl. 91-68). Product coated with a mixture of dense waterproofing mastic and slow-drying, lastingly adhesive mastic.

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1,861,663. Laminated plastic material. Frank T. Lahey, Monroe, N. Y. Filed Aug. 27, 1929. 4 claims. (Cl. 154-2). Combination of a plurality of superposed plies of differently colored fiber and rubber composition.

1,861,849. Method and apparatus for producing fibrous articles. Ralph S. Frobisher, assignor to Bemis Industries, Incorporated, Boston, Mass. Filed May 20, 1930. 24 claims. (Cl. 92-54). Machine for forming hollow, non-circular fibrous articles.

1,861,933. Process for extracting water-soluble substances from raw fibrous materials containing the same and for simultaneously forming the fibrous materials into a web, and system of apparatus therefor. Harold R. Murdock, assignor to The Champion Fibre Company, Canton, N. C. Filed Sept. 26, 1930. 2 claims. (Cl. 92-2).

1,861,945. Method of producing composite articles. Henry L. Ward, assignor to Western Electric Company, Incorporated, New York, N. Y. Filed Aug. 2, 1924. 2 claims. (Cl. 154-2.6). Composite insulator.

1,861,952. Machine for making paper boxes. Harold Carle, assignor to F. N. Burt Company, Limited, Toronto, Ontario, Canada. Filed July 19, 1928. 14 claims. (Cl. 271-33).

1,861,991. Manufacture of corrugated paper box blanks. Gustave A. Ungar, Pelham Manor, N. Y. Filed Apr. 1, 1930. 20 claims. (Cl. 93-58).

1,862,019. Process of making silk fiber sheet. Nao Kawaguchi, Montebello, Calif. Filed Sept. 9, 1931. 3 claims. (Cl. 92-14).

1,862,091. Means for embossing panels on cardboard. Harry Kaplan, New York, N. Y. Filed Jan. 2, 1931. 1 claim. (Cl. 101-31).

1,862,167. Method of silicifying fibrous materials. Otto Stiner, assignor to Herrn. Dr. Stiner and Lignatwerke A. G., Grandson, Berne, Switzerland. Filed July 29, 1930. 3 claims. (Cl. 91-68). The fibrous material is treated with acid-forming bacteria and saturating the material with water glass.

1,862,177. Method of manufacturing cellulose. Joaquin Julio de la Roza, Sr., Tuinucu, Cuba. Filed May 26, 1928. 2 claims. (Cl. 92-11). The fiber is treated with dilute sulphurous acid and stored.

1,862,243. Apparatus for recovering acid and heat units thereof from digesters and for preparing digester liquor. John Strindlund, assignor to Chemiulp Process, Inc., New York, N. Y. Filed Mar. 28, 1927. 6 claims. (Cl. 23-283).

1,862,318. Plaster board machine. George H. A. Ruby, Linden, N. J. Filed Jan. 6, 1930. 2 claims. (Cl. 154-1).

1,862,390. Method of forming boxes or box parts with curved bottoms. Johannes Schmiedel, assignor to the Firm "Universelle" Cigarettenmaschinen Fabrik J. C. Müller and Co., Dresden, Germany. Filed Feb. 8, 1930. 3 claims. (Cl. 93-51).

1,862,495. Beater roll. William V. Phenice, assignor to Midwest-Fulton Machine Company, Dayton, Ohio. Filed Oct. 13, 1930. 20 claims. (Cl. 92-20).

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1,862,541. Machine for making transparent papers. Edouard M. Kratz, assignor to Marsene Products Co., Chicago, Ill. Filed May 14, 1930. 19 claims. (Cl. 18-15).

1,862,565. Waterproofing composition and articles treated therewith. Charles E. Burke and Walter E. Lewson, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed July 9, 1928. 3 claims. (Cl. 91-68). Metastyrene and tricresyl phosphate are used.

1,862,643. Proportioning and metering apparatus. Harold Donald Wells, Glens Falls, N. Y. Filed May 28, 1931. 14 claims. (Cl. 92-46).

1,862,656. Manufacture of transparent paper. Sylvester Boyer, assignor to S. D. Warren Company, Boston, Mass. Filed May 27, 1930. 9 claims. (Cl. 92-71). Calender for transparentizing paper.

1,862,688. Process for making a fibrous building material. Emil C. Loetscher, Dubuque, Iowa. Filed July 12, 1929. 5 claims. (Cl. 92-61).

1,862,749. Treatment of artificial leather sheetings and product of same. Roger B. Hill and John A. Fogarty, assignors to Brown Company, Berlin, N. H. Filed Apr. 27, 1929. 4 claims. (Cl. 92-70). Method of working dye into product.

1,862,909. Suction roll. Andrew N. Russell, assignor to The Paper and Textile Machinery Company, Sandusky, Ohio. Filed Jan. 9, 1928. 31 claims. (Cl. 92-53).

1,863,104. Constructional material. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Cincinnati, Ohio. Filed Aug. 15, 1927. 3 claims. (Cl. 154-44). Waterprooted material.

1,863,184. Paper-stock refining engine. Guy S. Brazeau and Henry P. Madsen, assignors to Appleton Machine Company, Appleton, Wis. Filed Nov. 13, 1930. 2 claims. (Cl. 92-27).

1,863,329. Insulating product and method of producing same. Cyrus F. Logan and Charles F. Mahnke, said Logan assignor to Sedge Products Company, Packwaukee, Wis. Filed Aug. 22, 1930. 5 claims. (Cl. 154-28). Block of insulating material from fibers of water sedge.

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1,863,663. Pigment for coated paper. Vincent A. Lauderman, assignor to The Champion Coated Paper Co., Hamilton, Ohio. Filed Oct. 23, 1928. 11 claims. (Cl. 134-58). Lime sludge is the basis.

1,863,705. Process of producing a burner gas supply of uniform sulphur dioxide content. Walter H. Weinberg, assignor to The Grasselli Chemical Company, Cleveland, Ohio. Filed Mar. 13, 1931. 4 claims. (Cl. 23-179).

1,863,706. Corrugated paper board. Charles De Lorman Wood, assignor to The Grasselli Chemical Company, Cleveland, Ohio. Filed Sept. 29, 1930. 6 claims. (Cl. 154-55).

1,863,707. Multiply paper sheet. Charles De Lorman Wood, assignor to The Grasselli Chemical Company, Cleveland, Ohio. Filed Sept. 29, 1930. 5 claims. (Cl. 154-46).

1,863,709. Paper folding machine. Clifford S. Beall, Raymond, Wash. Filed Oct. 30, 1930. 4 claims. (Cl. 270-68).

1,863,731. Coated paper and method of making the same. Arlie W. Schorger, assignor to Burgess Cellulose Company, Freeport, Ill. Filed Nov. 12, 1929. 13 claims. (Cl. 91-68). A higher fatty acid and a hydrated mineral which loses its water on "scorching" are used.

1,863,808. Method of and apparatus for beating paper pulp. Walter N. Sherwood, North Hoosick, N. Y. Filed Feb. 9, 1931. 31 claims. (Cl. 92-23).

1,863,813. Method of making nonbleeding crepe paper. Gardner R. Alden and Thomas Nelson, assignors to Dennison Manufacturing Company, Framingham, Mass. Filed June 15, 1929. 13 claims. (Cl. 92-69). Method of dyeing tissue paper.

1,863,867. Paper size and process of making same. Augustus E. Maze, assignor to Manson Chemical Company, Montclair, N. J. Filed Apr. 10, 1926. 20 claims. (Cl. 92-21). An aqueous dispersion of paraffin wax and an oil are used.

1,863,880. Apparatus for making prepared building products. Thomas Robinson, assignor to Lancaster Asphalt, Inc., New York, N. Y. Filed July 16, 1929. 15 claims. (Cl. 154-38). Coating process.

1,863,973. Indented paper. William H. Ellis, Jr., Glendale, Ohio. Filed Dec. 19, 1930. 3 claims. (Cl. 154-55). Indented paper board.

1,864,055. Roofing material. William H. Finkeldey, assignor to Singmaster and Breyer, Inc., New York. N. Y. Filed Apr. 5, 1930. 6 claims. (Cl. 154-51).

1,864,069. Container. Vess Jones, New York, N. Y. Filed Jan. 19, 1929. 2 claims. (Cl. 229-52).

1,864,081. Blank and collapsible box formed therefrom. William S. Marr, assignor to Bakeries Service Corporation, New York, N. Y. Filed Dec 31, 1930. 6 claims. (Cl. 229-39).

1,864,116. Production of papers for security purposes. Viktor Bausch and Adolf Schroth, assignors to The Corporation Felix Schoeller and Bausch, Neu-Kaliss/Mecklenburg, Germany. Filed Oct. 3, 1931. 13 claims. (Cl. 92-21). A carboxylic hydrocarbon and a reagent sensitive to acid as regards its color are used.

1,864,220. Paper manufacture. Harold T. Ruff, assignor to The Mead Research Engineering Company, Dayton, Ohio. Filed Apr. 14, 1930. 21 claims. (Cl. 92-20). Halogens are used for treating the fibers.

1,864,479. Means for forming cardboard and similar cartons or containers. Herbert Maclean Ware, assignor to Associated Ice and Dairies Limited, Manchester, England. Filed Jan. 28, 1930. 4 claims. (Cl. 93-36).

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1,864,580. Method of making fiber webs and wet-machine therefor. Roy E. Brown, assignor to Brown Company, Berlin, N. H. Filed June 6, 1931. 6 claims. (Cl. 92-39).

1,864,619. Cyclic process of fiber liberation. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Sept. 30, 1925. 10 claims. (Cl. 92-11). Alkaline process and recovery of chemicals.

1,864,620. Process of liberating pulp from raw cellulosic materials. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Feb. 18, 1931. 6 claims. (Cl. 92-11). Use of non-acid sulphite solution.

1,864,624. Manufacture of pulp rovings. Frederick W. Vogel and William B. Meglitz, assignors to Brown Company, Berlin, N. H. Filed June 6, 1931. 5 claims. (Cl. 92-39).

1,864,632. Machine for making paper boxes or the like. Samuel Bergstein, assignor to The Interstate Folding Box Company, Middletown, Ohio. Filed Oct. 11, 1928. 3 claims. (Cl. 93-44).

1,864,674. Manufacture of impregnated articles. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Apr. 14, 1930. 6 claims. (Cl. 91-68).

1,864,726. Air deckling. Courtlandt B. Griffin, assignor to Carew Manufacturing Company, South Hadley Falls, Mass. Filed July 10, 1930. 3 claims. (Cl. 92-44).

1,864,784. Wet machine for insulating board. John A. Wiener and John B. Harmon, Oswego, N. Y. Filed Nov. 30, 1931. 9 claims. (Cl. 92-39).

1,864,806. Method of and apparatus for producing roofing. Donald A. Cumfer, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed July 17, 1929. 18 claims. (Cl. 91-68).

1,864,818. Pulp screening machine and process. Anton J. Haug, Nashua, N. H. Filed Jan. 9, 1929. 15 claims. (Cl. 92-35).

1,864,833. Process for manufacturing artificial stone places of fibrous materials and hydraulic cement. Robert Kunz, assignor to the Firm of Eternit, Inc., St. Louis, Mo. Filed Mar. 28, 1929. 7 claims. (Cl. 92-40).

1,864,835. Paper receptacle. Alexander J. Lackner, Flushing, N. Y. Filed Mar. 22, 1929. 6 claims. (Cl. 229-21). Paper cup.

1,864,836. Paper receptacle. Alexander J. Lackner, Flushing, N. Y. Filed Sept. 9, 1929. 4 claims. (Cl. 229-21). Paper cup.

1,864,852. Process of producing paper. Daniel B. Oblinger, assignor to Union Mills Paper Manufacturing Company, New Hope, Pa. Filed Oct. 29, 1929. 8 claims. (Cl. 92-76). Drying and calendering operations.

1,864,919. Machine for making molded pulp articles. Robert Frederick Martlin, assignor to John Harvey Pickett, Hamilton, Ontario, Canada. Filed May 2, 1929. 13 claims. (Cl. 92-56).

1,864,950. Condenser paper and method of making the same. Louis P. Schweitzer, New York, N. Y. Filed Apr. 19, 1929. 5 claims. (Cl. 154-2.6).

1,864,985. Method of manufacturing cellulose. Joaquin Julio de la Roza, Sr., Tuinucu, Cuba. Filed May 1, 1928. 5 claims. (Cl. 92-11). Sugar cane is treated with dilute sulphurous acid and then with an alkaline solution.

1,865,037. Method of making window envelopes. Abraham Novick, assignor to F. L. Smithe Machine Company, Inc., New York, N. Y. Filed Sept. 19, 1927. 5 claims. (Cl. 93-35).

1,865,049. Process for producing felted mineral wool insulation. George D. Shaver, assignor to Therminsul Corporation of America, Boston, Mass. Filed Jan. 7, 1931. 13 claims. (Cl. 92-39).

1,865,152. Production of electrolytic cathode-diaphragm structures. Kenneth E. Stuart, assignor to Hooker Electrochemical Company, New York, N. Y. Filed Jan. 31, 1930. 10 claims. (Cl. 92-54).

1,865,192. Method of making structural material. Walter Raymond Kappes, assignor to Aluminum Company of America, Pittsburgh, Pa. Filed Mar. 26, 1931. 8 claims. (Cl. 92-21). Pulp is mixed with 2 to 3 per cent of aluminum powder and an alkaline reagent.

1,865,270. Paper machine. George Nicholas, assignor to Rhinelander Paper Company, Rhinelander, Wis. Filed May 29, 1931. 4 claims. (Cl. 92-71). Calender rolls.

1,865,279. Auxiliary reel for paper making machines. Harry M. Ross, Indianapolis, Ind., assignor of one-half to Beveridge Paper Company, Indianapolis, Ind. Filed June 23, 1930. 1 claim. (Cl. 242-55).

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

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Sulphite Process

Sulphite Pulping Process. Robert B. Wolf assignor to Ligno-Cellulose Corp., U. S. pat. 1,837,309 (Dec. 22, 1931).—In the hot acid recovery system in which the digesters are all connected to a common relief header, in order to maintain a uniform pressure in each digester irrespective of pressure variations in the relief header, steam is supplied to the digesters at constant pressure, and the lines connecting the individual digesters with the relief headers are each provided with an automatically controlled regulating valve, such as a Locke or Mason regulator.

Fiber Liberation from Cellulosic Materials Such as Wood, Hemp, Bamboo, or Bagasse. George A. Richter assignor to Brown Co. U. S. pat. 1,841,551 (Jan. 19, 1932).—The raw material is subjected to the independent action of a sulphurous acid solution and of a bisulphite solution, and then cooked in an alkaline liquor such as caustic soda and sodium sulphide to complete the fiber liberation and produce a product which has a high alpha-cellulose content.—A. P.-C.

Cellulose Fiber Liberation. George A. Richter assignor to Brown Co. Can. pat. 315,642 (Sept. 29, 1931). —Cellulosic material is cooked markedly short of fiber liberation in an acid sulphite solution containing at least 1 per cent combined sulphur dioxide and at a temperature above 250 deg. F. The liquor is separated from the cooked material, which is then cooked to complete fiber liberation in an acid liquor containing less than 1 per cent combined sulphur dioxide and more than 3 per cent free sulphur dioxide and at a temperature below 250 deg. F.—A. P.-C.

Processing of Raw Cellulosic Material. George A. Richter assignor to Brown Co. Can. pat. 315,640 (Sept. 29, 1931).—Raw cellulosic material is digested at elevated temperature in a sulphurous acid liquor and a sodium-base oxidizing agent is added to the hot liquid. Sodium-base alkaline compounds, including caustic soda and sodium sulphide, are added to render the liquor alkaline, and the material is digested at elevated temperature in the alkaline liquor. The resulting pulp is separated from the spent liquor and the inorganic content of the spent liquor is smelted in a reducing atmosphere. The smelted compounds are causticized for re-use.—A. P.-C.

Production of Sulphite Pulp. Patentaktiebolaget Gröndal Ramén. Fr. pat. 713,809 (March 24, 1931).—The primary cellulose material is first boiled with a solution which contains alkali sulphites, bisulphites or a mixture of both, but in the absence of all entirely free sulphur dioxide, and the boiling is afterward completed with a solution which contains the necessary amount of entirely free sulphur dioxide—A. P.-C.

Processing of Raw Cellulosic Material. George A. Richter assignor to Brown Co. Can. pat. 315,641 (Sept. 29, 1931).—Raw cellulosic material is cooked in a sulphurous acid liquor. Alkali, including sodium sulphide, is added to the liquor to render it alkaline and the cooking is continued. The resulting is separated from the spent liquor and the sodium constituent of the spent liquor is smelted in a reducing atmosphere to produce sodium carbonate and sodium sulphide. The sodium carbonate is selectively crystallized and it and the rest of the smelt are again used in the process.—A. P.-C.

High-Grade Pulp from Wood, Straw, Grasses, etc. Ernst Schmidt. U. S. pat. 1,840,413 (Jan. 12, 1932).—The material is treated with a usual boiling solution, such as sulphite solution, with the addition of at least one water-soluble sulphate (such as aluminum, nickel or zinc sulphate) not belonging to either the alkali or alkaline-earth group.—A. P.-C.

Tanning Agent. Wilhelm Sailer assignor to The Mead Research Engineering Co. U. S. pats. 1,844,018 and 1,844,019 (Feb. 9, 1932).—*No. 1,844,018*—A tanning material comprises the halogenated reaction product of sulphite waste liquor with hydrogen peroxide and an enzyme such as peroxidase. *No. 1,844,019* relates to pre-tanning animal hides with a halogen reaction product obtained by bringing sulphite waste liquor into reaction with hydrogen peroxide and then halogenating, as by treatment with chlorine or bromine or both.—A. P.-C.

Detection of Sulphite Waste Liquor in Sea Water. H. K. Benson and W. R. Benson. Ind. Eng. Chem. (Analyt. Edit.) 4:220-223 (April 15, 1932).—In dilute concentrations of sulphite waste liquor in sea water, the oxygen consumed and the biochemical oxygen values, when compared with similar values for an unpoluted sea water in the same locality, are useful indications of its presence. pH values determined with an accurate colorimeter vary in the same manner as the equivalent acid required to give a constant pH beyond the buffering range of sea water. For high concentrations, the ordinary analytical determinations may be used to give approximate indications of amounts of sulphite waste liquor present if compared with a suitable reference sample.—A. P.-C.

Sulphite Waste Liquors

Preparation of Dyestuffs Which Are of Value for Obtaining Fast Tints on the Different Fibers and Process of Making Same. Max Bommer, Guillaume de Montmollin, Harsolaw Frölich, Fritz Grieshaber, Wolfgang Jaeck and Friedrich Felix assignors to Society of Chemical Industry in Basle. U. S. pat. 1,828,592 (Oct. 20, 1931).—Preparations in dry form are formed of dry water-insoluble dyes such as vat dyes of the anthraquinone series together with at least 20 per cent of dry sulphite waste liquor.—A. P.-C.

Treatment of Animal Fibers. Alfred MacKay assignor to American Salpa Corp. U. S. pat. 1,833,029 (Nov. 24, 1931).—A slurry comprising animal fibers such as hide scraps in aqueous suspension is treated with a by-product resulting from the digestion of cellulose fibers, such as a lignin material which serves as a binder.—A. P.-C.

Lignone Derivatives Suitable for Use in Protective Paints. Charles F. Cross and Alf Englestad. U.S. pat. 1,840,157 (Jan. 5, 1932).—A stable aqueous dispersion is produced by the use together of water, a substance such as coal tar or wood tar normally immiscible with water, and water-soluble condensation products of the soluble lignone derivatives obtainable by the treatment of wood with an aqueous solution containing sulphurous acid anions. Ferric chloride and ferric hydroxide also are added.—A. P.-C.

Furfural from Sulphite Waste Liquor. George A. Richter assignor to Brown Co. U. S. pat. 1,838,109 (Dec. 29, 1931).—Spent acid sulphite liquor is neutralized, concentrated, acidified and heated sufficiently to vaporize the furfural formed, and the latter is removed from the vapors evolved.—A. P.-C.

Method of Heating Sulphite Liquor. Arnold Brobeck. U. S. pat. 1,847,589. (March 1, 1932).—In order to prevent the formation of incrustations on the heating surfaces of heat exchangers, the sulphite liquor is divided into a large number of relatively thin tube-like streams defined by the heating surfaces, applying heat at a temperature of 110 deg. to 185 deg. C. to the inner surfaces of the tube-like streams, and forcing the liquor streams at all points to travel at a velocity of at least 1.5 meters per second so as to prevent boiling of the liquor and precipitation of calcium monosulphite on the heating surfaces.—A. P.-C.

Process for the Conversion of Lignin, Lignin Derivative and Lignin Containing Substances, Such as Pulp Liquors, Into Valuable Technical Products. Max Max Steinschneider & Aktiengesellschaft für Zellstoff und Paperfabrikation, Aschaffenburg. Ger. pat. 546,941 (Feb. 25, 1928).—The process is conducted in an atmosphere of hydrogen in the presence of catalysers. The substances are split up under high pressures and in non-aqueous alkali solutions at temperatures above the boiling point of the alcohol.—J. F. O.

Process for the Preparation of a Pulverized Product from Waste Sulphite Liquor Which is Resistant to Air. I. G. Farbenindustrie A. G., Frankfurt a.M. Ger. pat. 527,800 (April 16, 1925).—The liquor is evaporated at temperatures above 150 deg. For example the powdery product obtained from the waste sulphite liquor by evaporating it at 140 deg. on a roll dryer, is heated for 6 hours at about 180 deg. A fine powdery product is obtained which is completely resistant to air and easily soluble in water.—J. F. O.

Process for the Manufacture of Conversion Products from Sulphite Pulp Pitch. British Dyestuff Corp. Ltd., Manchester, England. Ger. pat. 525,068 (Oct. 22, 1927).—Sulphite pulp pitch is treated at high temperature and under pressure with ammonia solutions. For example,, 36 parts by weight of sulphite pulp pitch is dissolved in 100 parts of water and mixed with 50 parts by weight of aqueous ammonia and the entire contents are heated in an autoclave for 12 hours at 110 to 120 deg. C. The solution is evaporated to dryness or precipitated by acidifying. The newly formed products are suitable for protective colloids, for example, as an additive for dispersing color pastes which are to be changed into a powdery form. It also can find use as tanning material.—J. F. O.

Miscellaneous Digesting Processes

Process for the Decomposition of Fiberous Plant Materials by the Use of Alcohol and Water. Theodor Klienert and Kurt von Tayenthal, Vienna. Ger. pat. 532,741 (Nov. 7, 1929).—An alcohol water mixture with a water content of 20 to 75 per cent is used as the decomposition agent, under pressure at temperatures over 150 deg. C. According to claim number 2, repeated renewals of the decomposition agent takes place during the decomposition. According to claim number 3, materials are added in a quantity under 0.1 per cent which will act on the bases in the raw material. According to claim number 4, monovalent alcohols and their mixtures are used.—J. F. O.

Process for the Decomposition of Plant Fiberous Materials. IG. Farbenindustrie, Akt. Ges., Frankfurt a.M. Ger. pat. 546,314 (April 30, 1929).Addition to pat. 503,450.—In furtherance to the original patent 503,450, the decomposition of the fibers impregnated with nitric acid are treated at the finish with usual or weak nitric acid solution and in the warm state.—J. F. O.

Arrangement for the Manufacture of Pulp. Einar Morterud, Torderoed. Nor. pat. 49,240 (Sept. 10. 1928).—The starting material (wood) is treated with a liquid which dissolves the incrustants, the liquid being in constant circulation and flowing over the material. The ap-

paratus consists of one or more towers for the liquid to flow over the wood and storage tanks for the prepared liquid.—J. F. O.

Treatment of Paper Making Fibers. Kellogg-Dils, Inc. Belg. pat. 380,316 (July 31, 1931); U. S. pat. 1,846,093 (Feb. 23, 1932).—The fibers are treated with hydrogen in presence of a catalyst.—A. P.-C.

Pulps—Purification

Treatment of Pulp. Marie M. P. Thierry. Fr. pat. 714,345 (July 18, 1930).—Paper pulp is cooled to obtain increased absorption of water.—A. P.-C.

Treatment of Pulp. Marie M. P. Thierry. Fr. pat. 714,693 (Aug. 4, 1930).—Paper pulp is subjected to a high pressure to increase the absorption of water by the cellulose.—A. P.-C.

Treating Cellulose Fiber in Order to Render It Suitable for Use in Rayon Manufacture. George A. Richter assignor to Brown Co. U. S. pats. 1,842,688 and 1,842,689 (Jan. 26, 1932).—*No. 1,842,688*—Cellulose fiber is materially reduced in size and run into waterleaf paper. *No. 1,842,689*—High alpha-cellulose wood fiber is pulverized in the presence of a non-hydrating wetting medium such as alcohol or benzene.—A. P.-C.

Purifying Cellulosic Material Such as Cotton Linters or Wood Pulp. Harry P. Bassett. U. S. pat. 1,842,649 (Jan. 26, 1932).—The material is boiled with a caustic solution at a pressure not in excess of 50 lb. per sq. in., liquid is removed from the material and it is then treated with a solution of caustic soda and a buffer compound, such as sodium phosphate, to regulate the degree of viscosity (the caustic solutions being of such concentration as to dissovle impurities without causing deterioration of the cellulose). The product thus prepared is suitable for rayon manufacture.—A. P.-C.

Low-Viscosity Cellulose Fiber. George A. Richter assignor to The Brown Co. Can. pat. 315,638 (Sept. 29, 1931).—White cellulose fiber is treated at a consistency of about 4 to 10% in a dilute solution of a ferric salt until its viscosity has been lowered to a value less than 1. The resulting fiber is then treated in an oxalic acid solution to remove the color imparted thereto by the ferric salt solution.—A. P.-C.

Product of High-Alpha-Cellulose Pulp. Elton R. Darling assignor to Cornstalks Products Co., Inc. U. S. pat. 1,838,367 (Dec. 29, 1931).—Cellulose such as that derived from cornstalks is subjected in the bleached condition to the action of water under pressure and heat.—A. P.-C.

Preparation of Refined Wood Pulp of Low Pentosan Content. George A. Richter assignor to Brown Co. U. S. pat. 1,838,326 (Dec. 29, 1931).—A bleached or whitened chemical wood pulp having an alpha-cellulose content above 96%, a pentosan content of less than 1% and a tear resistance greater than that of unbleached kraft pulp derived from similar wood and subjected to the same degree of beating or hydration is obtained by successive cooking with acid and alkaline solutions.—A. P.-C.

Purification of Cellulose. Papeteries Navarra. Fr. pats. 716,302 and 716,303 (Sept. 4, 1930).—*No. 716,302*—Wood cellulose is purified by a methodical treatment with sodium carbonate solution in a series of vats. *No. 716,303* describes the use of sodium carbonate solution to dissolve the incrusting materials of vegetable materials and liberate the cellulose.—A. P.-C.

Purification of Pulp. Zellstofffabrik Waldhof, Hellmuth Müller-Clemm and Walter Leupold. Fr. pat. 709,229 (Jan. 12, 1931).—Pulp is purified after the usual cooking, by water introduced at the botom of the digester and evacuated at the top.—A. P.-C.

Process for the Removal of Rosin and Fats from Pulps. Oscar Antonnetty, Bonn. Ger. pat. 535,809 Aug. 14, 1928).—Alkali sulphate as well as other alkali or ammonium salts and then earth alkali hydroxides or oxides are added to the pulp while it is being treated in the beater.—J. F. O.

Process for Improving Vegetable Fibers by Treatment with Copper Ammonium Hydroxide Solution and a Following Treatment with Acids. Friedrich Karl Jaeger, Plauen. Ger. pat. 543,873 (Jan. 31, 1929).—In order to obtain a good finish the fibrous material is treated with copper ammonium hydroxide solution and dried before the acid treatment.—J. F. O.

Process for Decreasing the Absorptive Ability of Hydrated Cellulose. I. G. Farbenindustrie. Akt. Ges., Frankfurt a.M. Ger. pat. 535,234 (Oct. 6, 1926).—The freshly precipitated or already dried hydrated cellulose is impregnated in an aqueous weak alkaline soultion of area and formaldehyde, and then further treated.—J. F. O.

Process for Decreasing the Swelling Property of Hydrated Cellulose. I. G. Farbenindustrie A. G., Frankfurt a.M. Ger. pat. 537,036 (July 26, 1927).—Addition to Ger. pat. 535,234. In carrying out further the main patent 535,234, the cellulose hydrate is treated with weak acid solutions, suitably under the use of a buffer mixture.—J. F. O.

Beaters and Beating

Kollergangs. H. L. Muller. Papeterie 54: 178-182 (Feb. 25, 1392).—A brief explanation of the mechanism of the action of kollergangs, with indications regarding the principal troubles encountered and their remedies.—A. P.-C.

Marcy Open End Rod Mill. W. L. Campbell. PAPER MILL 55, No. 10:4 (March 5, 1932).—A brief outline of the performance of the rod mill in the mechanical processing of pulp or partially cooked chips.—A. P.-C.

Paper Pulp Beater. P. J. Wolf und Soehne and Hermann Mallickh. Fr. pat. 696,686.—The beater trough is divided into three channels. On leaving the roll the stock passes into the lateral channels and from there into the central channel and back again to the roll. The level of the stock is sharply lowered immediately in front of the roll, so that the transverse channel in front of the roll, and which conducts the stock into the lateral channels, is given a marked drop, 15° or more to the horizontal. The lowering of the level of the stock can be still further increased due to the fact that the interior walls of the trough can be made to converge obliquely, so that the central channel widens out toward the roll.—A. P.-C.

Further Notes on the Hydration of Cellulose in Paper Making. James Strachan. World's Paper Trade Rev: 97, 576-582; 667-675; 755-764, 800-805; (Feb. 19, 1926, March 4, 1932).—In the course of an extensive discussion, the author corrects some misunderstandings which have arisen from misinterpretation of his previous article on the subject *(Paper Ind.* 8, 235-237 (1926)), criticises briefly a few of the more recent developments of the physical theory of hydration, and elaborates on some of the points touched upon in his former contribution to the subject.—A. P.-C.

Beating Engine. Clifford D. Sheldon. U. S. pat. 1,849,556 (March 15, 1932).—The bedplate is mounted so as to rock freely about an axis parallel to the axis of the roll, the axis of rotation of the bedplate lying within the angle subtended by the working face of the bedplate at the axis of the roll.—A. P.-C.

Wiener Pulp Refiner. Anon. Paper Mill 55, No. 13; 4 (March 26, 1932).—A brief description of the apparatus consisting essentially of a grooved and tapered plug which rotates inside a stationary casing, the inner surface of which is also grooved, the stock being introduced at the large end and removed at the small end.—A. P.-C.

Refiner. Pierce M. Travis. U. S. pat. 1,851,071 (March 29, 1932).—In a jordan-type refiner, impeller blades are attached to the large end of the plug and are disposed in such a way as to retard the flow of stock through the machine.—A. P.-C.

Beater Roll Construction. Frank G. Feeley assignor to E. D. Jones and Co. U. S. pat. 1,837,768 (Dec. 22, 1931).—In order to relieve the springing tendency of the bars of banded beater rolls, the bars are provided with lugs fitting into corresponding slots in each of the spiders supporting the bars. The tendency to spring is thus counteracted at each of the spiders. Instead of shrinking a band into the ends of the bars, rings may be screwed into the outside face of the outer spiders to prevent lateral displacement of the bars.—A. P.-C.

Refining Engine. John D. Haskell. U. S. pat. 1,835,984 (Dec. 8, 1931).—The engine consist of a circular disk provided with suitable knives on both faces which rotates within a co-axial, elliptical casing, the inner walls of which are also provided with knives over the portion of their surface which is opposite the rotating disk.—A. P.-C.

Beating Engine Suitable for Asbestos Fiber Paper Stock. John A. Heany assignor to World Bestos Corp. U. S. pat. 1,836,467 (Dec. 15, 1931).—Beating is carried out, preferably in presence of lime, starch and caustic soda, in a beater provided with a pair of adjustable rolls behind the backfall, so that after passing under the beater roll proper the fiber is squeezed between the other two rolls.—A. P.-C.

Pulp Beater. William A. Bessmer assignor to Hammermill Paper Co. U. S. pat. 1,837,806 (Dec. 22, 1931).—The roll is driven by an electric motor through a speed-reducing worm gear, without the use of a belt. The motor is pivotally mounted on one of the lighter bars in such a way that, when the roll "jumps" on account of the passage of lumps of stock, the motor and the worm-gear remain in proper relation.—A. P.-C.

Method and Apparatus for Beating Pulp. Arthur D. Little assignor to Rubber Surfacers, Inc. U. S. pat. 1,842,758 (Jan. 26, 1932).—The beater roll and (or) the bedplate are provided with yielding, resilient, beating elements.—A. P.-C.

Device i.e. a Beater or Jordan for Decreasing the Size of Fibrous Materials in the Manufacture of Paper, Board or Similar Materials. A. E. Reed & Co. Ltd. London. Ger. pat. 536,785 (Dec. 1, 1929). J. F. O.

Device for the Mixing of Fiberous Materials with Water. Arca Regler, Berlin. Ger. pat. 529,512 (April 9, 1929).—The original stock is pumped through a tube with baffles so as to give the material a rotating motion when it comes in contact with the dilution medium which is also added in the tube. The mixture then enters another zone with differently constructed baffles which mix the materials intimately.—J. F. O.

Beater for Paper and Board Stock Preparation with a Circulation Canal Lying in a Vertical Plane, and with an Enclosed Housing Operating Under Vacuum. Fritz Arledter, Cologne, Ger. pat. 506,695 (May 13, 1925).—The housing which forms the circulation canal is built in the shape of a large tube whose ends are joined together. The bedplate is above the roll which in turn is placed at the top of the tube. The vacuum outlet is located at the highest point in the tube and the stock outlet is located at the bottom.—J. F. O.

Drum Mill for the Manufacture of Paper and Board. Ulrich Kirchner, Bieberach, & Gerald Strecker, Darmstadt. Ger. pat. 540,957 (April 11, 1929).—Specially shaped forms are placed inside a revolving drum which beats the fibers in such a manner that balls of stock is not pushed through the mill but are worked upon for its full length.—J. F. O.

Sizing

Making Tub-Sized Paper. A. J. Wildman. Paper Ind. 14: 44 (April, 1932).—A brief discussion of the principal factors in the manufacture of tub-sized paper.—A. P.-C.

The Sizing Theory in the Light of the Bewoid Process. Bruno Wieger. Zellstoff Papier 12, No. 1: 15-18 (January, 1932).—The author contests the statement, that in the usual rosin sizing process, the fibers are covered with a water repelling coating. He proves by micro photographs, that in the Bewoid process there is no coating but a number of disconnected rosin balls which are precipitated on the fibers. The easiest to size is unbleached soda pulp and the most difficult is brown ground wood obtained from green wood.—J. F. O.

Chintschins Sizing Process. Papier-Fabr. 30, No. 5: 55-56 (Jan. 31, 1932).—The process is similar to the Delthirna and is as follows. Pieces of rosin of from 3 to 6 centimeters are dissolved cold in a ½ per cent solution of sodium hydroxide until the solution contains 40 grams per liter. Soda is added to the size when soft water is used. One third of the rosin is saved over the hot dissolving, however more alum is then necessary.—J. F. O.

Process for the Sizing of Paper Stock. Otto C. Strecker, Darmstadt. Ger. pat. 546,883 (Feb. 14, 1932).—Addition to Ger. pat 536,784. The oxydixing materials formed during the sizing is made harmless by mixing the precipitation means with reducing substances, especially compounds of the two and four valent sulphur.—J. F. O.

Process for the Sizing of Stock with Natural Rosin (colophony). Firma Otto Strecker, Darmstadt. Ger. pat. 536,784 (Feb. 26, 1930).—Reducing substances are added to the paper stock in the beater or the chest. According to claim number 2, compounds of the two or four valent sulphurs, such as sulphite, thiosulphate, hydrosulphite and similar substances are used. According to claim number 3, the above is done during or after the sizing.—J. F. O.

Process for the Manufacture of Rosin Size. Otto Strecker, Darmstadt. Ger. pat. 536,472 (Oct. 25, 1929).—Ammonium salts, preferably ammonium sulphate is added to the rosin which has been dissolved in cold very dilute sodium hydroxide, and in such amounts that about 50 to 100 per cent of the sodium hydroxide present is converted to sodium sulphate. An increase in the particles of rosin .s made possible by the method of operation without precipitation and a paper size is attained which possesses a high content of free rosin.—J. F. O.

Process for the Manufacture of Rosin Size. Otto Strecker, Darmstadt. Ger. pat. 537,940 (Dec. 7, 1929).—Addition to Ger. pat. 536,472. In carrying out the main patent 536,472 further, small quantities of free ammonia is added to the rosin solution besides the ammonia salts.—J. F. O.

Process for Making Sized Papers Containing Alkaline Fillers. Raffold International Corp. Fr. pat. 716,420 (May 1, 1931).—The size and filler are added under suitable conditions to minimize the time of contacts of these two reagents before formation of the paper.—A. P.-C.

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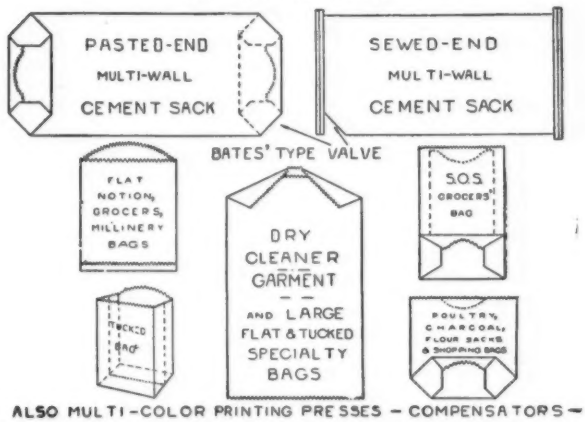

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NEW YORK IMPORTS

WEEK ENDING JULY 30, 1932

CIGARETTE PAPER

Champagne Paper Corp., De Grasse, Havre, 30 cs.; American Tobacco Co., De Grasse, Havre, 180 cs.; American Tobacco Co., Ile de France, Havre, 265 cs.; Standard Products Corp., Ile de France, Havre, 33 cs.; Champagne Paper Corp., Ile de France, Havre, 34 cs.; Champagne Paper Corp., Sarcoxie, Havre, 140 cs.

WALL PAPER

F. J. Emmerich, Britannic, Liverpool, 2 cs.; P. C. Kuyper, Bremen, Bremen, 1 cs.; N. Y. Trust Co., Madrid, Bremen, 3 cs.; Globe Shipping Co., New York, Hamburg, 2 bls.

PAPER HANGINGS

——, Majestic, Southampton, 1 cs.

WALL BOARD

——, Pr. Harding, Hamburg, 500 bdls.

NEWS PRINT

Jay Madden Corp., Madrid, Bremen, 139 rolls; Perkins Goodwin & Co., Madrid, Bremen, 66 rolls; H. Reeve Angel & Co. Inc., New York, Hamburg, 29 rolls; Baldwin Paper Co., New York, Hamburg, 120 rolls.

PRINTING PAPER

E. Dietzgen & Co., Rotterdam, Rotterdam, 17 cs.; Perkins Goodwin & Co., New York, Hamburg, 349 rolls.

WRAPPING PAPER

Yardley & Co., American Trader, London, 2 cs.; T. Barrett & Son, Gripsholm, Gothenburg, 64 bls.

KRAFT PAPER

Walker Goulard Plehn Co., Madrid, Bremen, 164 rolls.

DRAWING PAPER

F. Weber & Co., Britannic, Liverpool, 2 cs.; H. Reeve Angel & Co. Inc., American Trader, London, 2 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., American Trader, London, 5 cs.

FILTER MASSE

Atlantic F'd'g Co., New York, Hamburg, 60 bls.

TISSUE PAPER

D. F. Young & Co., Britannic, Liverpool, 5 cs.; M. Snedeker Corp., American Trader, London, 1 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Westernland, Antwerp, 12 cs.; Gevaert Co of America, Westernland, Antwerp, 4 cs.; Phoenix Shipping Co., New York, Hamburg, 9 cs.

METAL COATED PAPER

Globe Shipping Co., Bremen, Bremen, 8 cs.; K. Pauli Co., New-York, Hamburg, 4 cs.

BARYTA COATED PAPER

Globe Shipping Co., Madrid, Bremen, 51 cs.

BASIC PAPER

Globe Shipping Co., Madrid, Bremen, 2 cs.

PHOTO PAPER

American Express Co., New York, Hamburg, 1 cs.

PARCHMENT PAPER

Bankers Trust Co., Ala., Rotterdam, 53 bls., 2 cs.

STENCIL PAPER

Wedeman Godknecht & Lally, New York, Hamburg, 13 cs.

CARD BOARD

Roger & Gallet, De Grasse, Havre, 3 cs.

MISCELLANEOUS PAPER

Globe Shipping Co., Rotterdam, Rotterdam, 17 cs.; Steiner Paper Corp., Rotterdam, Rotterdam, 4 cs.; Japan Paper Co., Nyhorn, Kobe, 20 cs.; Keller Dorian Paper Co., Ile de France, Havre, 3 cs.; Hensel Bruckman & Lorbacher, Madrid, Bremen, 4 cs.; Schencker & Co., Madrid, Bremen, 4 cs.; J. Romer, Takaoka Maru, Osaka, 5 cs.; The Borregaard Co. Inc., Gripsholm, Gothenburg, 643 rolls; H. Reeve Angel & Co. Inc., Gripsholm, Gothenburg, 118 rolls, 26 bls.

RAGS, BAGGINGS, ETC.

E. J. Keller Co. Inc., California, ——, 45 bls. new cuttings; J. Cohen Son & Co., Britannic, Liverpool, 22 bls. paper stock; Banco Coml Italiane Trust Co., Madrid, Bremen, 54 bls. rags; E. J. Keller Co. Inc., Deutschland, ——, 47 bls. rags; E. J. Keller Co. Inc, New York, ——, 14 bls rags; National City Bank, New York, Hamburg, 127 bls. rags; A. W. Fenton, Inc., New York, Hamburg, 4 bls. rags.

OLD ROPE

International Purchasing Co., Excalibur, Genoa, 263 coils; Castle & Overton Inc., Guido, Hull, 48 coils; E. J. Keller Co. Inc., New York, ——, 16 coils.

CHINA CLAY

——, Britannic, Liverpool, 84 bags.

PULPWOOD

Bank of America Natl Assn., Handicap, Archangel, 3554 cords pulpwood; Oswego Falls Corp., Evviva, South Nelson, 1150 cords pulpwood.

WOOD PULP

Johaneson Wales & Sparre Inc., Gripsholm, Gothenburg, 500 bls. sulphite; Castle & Overton Inc., New York, Hamburg, 830 bls. wood pulp, 166 tons; E. J. Keller Co. Inc., Pr. Harding, ——, 339 bls. wood pulp, 51 tons; Castle & Overton Inc., Hjelmaren, Wiborg, 2500 bls. wood pulp; ——, Hjelmaren, Wiborg, 595 bls. sulphite; Lagerloef Trading Co., Hjelmaren, Wiborg, 260 bls. mechanical pulp; Lagerloef Trading Co., Hjelmaren, Rauma, 260 bls. mechanical pulp; 1851 bls. sulphite; Bulkley Dunton & Co., Stuttgart, ——, 251 bls. wood pulp; Bulkley Dunton & Co., Hannover, ——, 500 bls. wood pulp.

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COLORS FOR PAPER

have proved they are the best and are being used daily by the greatest number of paper mills.

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All kinds and styles of Felts for all kinds and styles of Papers.

Write us about your Felt problems and let us help you reduce your Felt Costs—we will call anywhere at any time.

DRAPER BROS. COMPANY

CANTON. MASS.

Woolen manufacturers since 1856

WOOD FLOUR

State Chemical Co., Rotterdam, Rotterdam, 500 bags; A. Kramer & Co., Rotterdam, Rotterdam, 200 bags.

BOSTON IMPORTS

WEEK ENDING JULY 30, 1932

——, Ala, Rotterdam, 4 cs. metal coated paper; Bendix Paper Co., Ala, Rotterdam, 20 bls., 6 cs. wood pulp wadding; Hercules Fiber Co., Ala, Rotterdam, 127 bls. wood pulp boards; C. H. Powell & Co., Ala, Rotterdam, 290 rolls straw board; G. F. Malcolm & Co., Scythia, Liverpool, 32 cs. tissue paper; International Purchasing Co., Guido, Hull, 90 coils old rope; 282 coils yarn; Bulkley Dunton & Co., Hannover, ——, 125 bls. wood pulp; Bulkley Dunton & Co., Harburg, ——, 675 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 30, 1932

J. Rosenberg, Nyhorn, Kobe, 100 bls. rags; Castle & Overton Inc., Sarcoxie, Dunkirk, 218 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING JULY 30, 1932

Gottesman & Co. Inc., Ala, Rotterdam, 1050 bls. sulphite; Congoleum Nairn Co., Ala, Rotterdam, 422 bls. dark cottons.

NORFOLK IMPORTS

WEEK ENDING JULY 30, 1932

Darmstadt Scott & Courtney, Ala, Rotterdam, 255 bls. bagging.

Envelope Production in 1931

The Bureau of the Census announces that, according to a preliminary tabulation of data collected in the Census of Manufactures taken in 1932, the value of envelopes produced in the United States in 1931 by establishments engaged primarily in the manufacture of this class of products amounted to $42,435,000 (at f.o.b. factory prices), a decrease of 25 per cent as compared with $56,605,538 reported for 1929, the last preceding census year.

Statistics for 1931, with comparative figures for 1929, are given in the following table. The items for 1931 are preliminary and subject to revision and therefore are expressed in round numbers.

	1931	1929	Per cent of decrease
Number of establishments	158	171	— 8
Wage earners (average for the year) [1]	8,600	10,367	—17
Wages [2]	$9,398,000	$11,526,849	—18
Cost of materials, fuel, and purchased electric energy [3]	21,275,000	29,927,683	—29
Products, total value [2, 3]	45,662,000	61,286,992	—26
Envelopes, total value	$42,435,000	$56,605,538	—25
Writing	14,333,000	21,512,674	—33
Kraft	6,988,000	9,531,284	—27
Other	21,114,000	25,561,580	—17
Other products	3,227,000	4,681,454	—31
Value added by manufacture [4]	$24,387,000	$31,359,309	—22

[1] Not including salaried officers and employees. The average number of wage earners is based on the numbers reported for the several months of the year. This average probably exceeds somewhat the number that would have been required for the work performed if all had been continuously employed throughout the year, because of the fact that manufacturers report the number employed on or about the 15th day of each month, as shown by the pay rolls, usually taking no account of the possibility that some or all of the wage earners may have been on part time or for some other reason may not actually have worked the entire month. Thus it becomes necessary to give equal weight to full-time and part-time wage earners in calculating the average, and therefore the average may overstate somewhat the amount of full-time employment. For this reason the quotient obtained by dividing the amount of wages by the average number of wage earners can not be accepted as representing the average wage received by full-time wage earners.

[2] Manufacturers' profits can not be calculated from the census figures because no data are collected for certain expense items, such as salaries, interest on investment, rent, depreciation, taxes, insurance, and advertising.

[3] For 1931, production; for 1929, sales (shipments or deliveries) by manufacturers.

[4] Value of products less cost of materials, fuel, and purchased electric energy.

Effect of Paper Formation on Stability of Folding Endurance

In its studies of the stability of paper, the Bureau of Standards has noticed that in a few cases the fold retention values of commercial papers under the heat test have been different in the machine and cross directions by an amount that is greater than the experimental error. To study the possibility of this occurrence being related to the manner in which the paper is formed on the paper machine wire, an experimental machine run was made in which the speed was kept constant and the shake of the wire varied. The different lengths of the shake were ⅛, $\frac{3}{16}$, and ¼ inch, and its rapidity varied from 225 to 290 per minute. Samples of paper taken at different steps during the run were tested for folding endurance before and after heat treatment.

In none of the cases was there any variation between the respective machine and cross direction retention values of as great a magnitude as has been observed in the case of the commercial papers. In four cases the retention values in the two directions agreed within experimental error. In the other two cases they differed by 20 per cent, and this variation was apparently caused by the poorer formation, the initial machine direction folding endurance being nearly 5 times that in the cross direction as compared to about 2½ times for the others. In no case was the variation serious enough to produce a significant effect on the average retention value. The maximum difference of any one retention value from the average of all was 4 per cent.

The best formation as regards approach to uniformity of strength in the two directions was obtained with the intermediate stroke length.

Lindley Box Co. Reincorporates

The Lindley Box and Paper Company, manufacturers of cartons and paper folding boxes, cardboard specialties, etc., Marion, Ind., states that "our reincorporation has merely been a transfer of our charter from the old inadequate Indiana Corporation Laws to the new liberal improved Indiana incorporation laws.

"There has been no important change in our company except that we have reduced our capital about 40 per cent, discontinuing unprofitable territories and also discontinuing some unprofitable lines of goods that we were manufacturing, thus skirting a portion of our most unprofitable investments and sales expense and unprofitable Accounts Receivable over to Non-taxable Government bonds.

"This change improved our financial position and protects our future cash position for several years, therefore, the new reincorporation setup merely reduces our capital a little in the box manufacturing business which will have no effect on our general credit position."

Park Tissue Mills Move

Park Tissue Mills, Inc., manufacturers of toilet paper, of Thomson avenue and Manly street, Long Island City, N. Y., will move its toilet and tissue converting plant to Salisbury Mills, N. Y., where the paper mills of the Frost-White Paper Mills, Inc. are located. The company's office and a small stock room will be located at 4077 Park avenue. The new telephone number is Topping 2-4942-3.

The Park Tissue Mills, Inc., will make daily deliveries by truck to all parts of the metropolitan area as well as freight deliveries to all parts of the country. They assure customers that they will be in a position to give them prompt, reliable and efficient service.

EXTENSION MODEL

Cambridge Surface Pyrometer

is an instrument which applied to the surface of a dryer or calender roll, instantly indicates the exact surface temperature. Its use enables the operator to locate water logged rolls and to maintain every roll at the correct temperature for efficient progressive drying.

The instrument is compact, rugged and easy to read. The extension rod permits temperature checking across the entire roll. Scale ranges are 50-250° and 50-400° F.

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Can you afford to cook your beater starch?

High speed production makes it costly and difficult . . . AMIJEL does not have to be cooked, just add in dry form to the beater.

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17 Battery Place, New York, N. Y.

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for every grade of

PULP AND PAPER

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Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
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protects your rolls and insures their delivery to your customer in perfect condition. They eliminate claims for damages.

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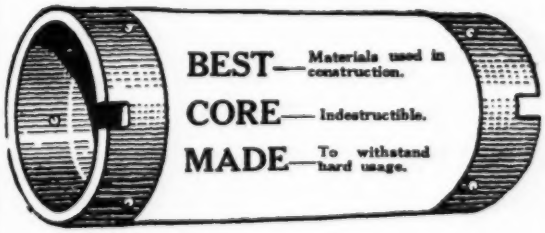

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New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 3, 1932.

While the local paper market continues quiet the outlook for the future is considered brighter in some quarters. Demand for the various standard grades of paper is only moderately active, with the exception of summer specialties, which are in seasonal request. Prices are generally holding to formerly quoted levels.

The news print paper market is only marking time at present. Production in the United States, Canada and Newfoundland is being maintained in sufficient volume to take care of current requirements. Accumulations at the mills are ample. Efforts by the leading interests to stabilize the industry are proceeding slowly. Prices remain unchanged.

Trading in the paper board market is light. Demand for box board is mainly routine. The price situation is unsatisfactory. The fine paper market continues fairly steady. Tissues are moving at a seasonal pace. The coarse paper market is spotty and kraft wrapping paper prices are slightly easier. The movement of supplies into consumption is moderate.

Mechanical Pulp

The position of the ground wood market is practically unchanged. While demand for both domestic and imported mechanical pulp is listless, manufacturers at home and abroad have been curtailing operations and offerings are not excessive, with the result that the industry is in a fairly satisfactory statistical condition. Prices are holding to schedule.

Chemical Pulp

Although the chemical pulp market is feeling the effects of the general business situation there is a better sentiment around than for some time past and more lively trading is anticipated following the summer holidays. The Swedish pulp mill workers strike continues to have a steadying influence on quotations, which are well maintained.

Old Rope and Bagging

No radical changes were reported in the old rope market during the past week. Paper mill demand for both domestic and foreign old manila rope is somewhat restricted. Small mixed rope is only moving slowly. The bagging market is irregular. While gunny bagging is in fairly good request, little interest is being displayed in scrap bagging.

Rags

The domestic rag market is exhibiting some signs of improvement. Inquiries for certain grades of cotton cuttings are fairly numerous, some of which should materialize into desirable orders. Demand for roofing grades has fallen off. The imported rag market is still affected by conditions abroad and prices are strictly nominal.

Waste Paper

Board mill demand for the lower grades of paper stock is fairly persistent. Supplies continue to be offered in limited volume and quotations are holding up well, in most instances. Old kraft machine compressed bales are steadier. Hard and soft white shavings are in fair request. Book stock, however, is very quiet at present.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. Current demand for the various grades is light and traders are anxiously awaiting the change of the season in the anticipation that conditions will improve. Despite keen competition, prices continue fairly steady.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 3, 1932—The Government Printing Office has received the following bids for 10,000 pounds of antique laid book paper; R. P. Andrews Paper Company, at 9.19 cents per pound; Whitaker Paper Company, 8.21 cents; Old Dominion Paper Company, 10.69 cents; Reese & Reese, Inc., 15.74 cents; Whiting Paper Company, 11 cents; Worthy Paper Company, 13 cents; Mathers-Lamm Paper Company, 8 cents; Hawthorne Paper Company, 7.68 cents.

For 9,900 pounds of natural tint paper; Aetna Paper Company, 10.87 cents; Barton, Duer & Koch Paper Company, 12.4 cents; Whitaker Paper Company, 9.89 cents; Hawthorne Paper Company, 11.66 cents and Whiting Paper Company, 11.25 cents.

The Government Printing Office has received the following bids for 1,205 pounds of H. F. red sulphite paper; Reese & Reese, Inc., 8.66 cents per pound; R. P. Andrews Paper Company, 8.65 cents; Charles G. Stott & Co., Inc., 8.2 cents; Tarentum Paper Mills, 7.25 cents; Virginia Paper Company, Inc., 9 cents; Barton Duer & Kich Paper Company, 9.25 cents; Mathers-Lamm Paper Company, 8.9 cents; Whitaker Paper Company, 8.19 cents and 8.81 cents.

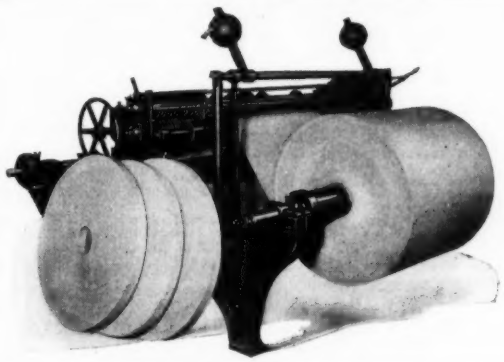
New Chemical For De-Inking Papers

The American Paper Chemicals, Inc., newly incorporated, are about to put on the market a new chemical called Solv-Ink for De-inking waste papers including old newspapers.

Solv-Ink is not a caustic, it is a compounded chemical that will de-ink all grades of papers. It does not call for any additional equipment, and the equipment commonly used in present day practical mill operations is all that is needed in use of Solv-Ink.

Due to the chemical properties of Solv-Ink, it will reduce shrinkage substantially and in an actual mill test reduced manufacturing costs of paper pulp about 20 per cent, increased physical tests about 35 per cent and due to shorter time in cooking, reduced steam costs 40 per cent, and due to chemical action it required almost no bleaching.

The company is prepared to give commercial tests and has practical men in paper making to give advice and assist mills in use of Solv-Ink.



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Designed to meet the requirements of all users of Automatic Machines that take the stock from the roll, and require a roll of large diameter wound true and solid.

With this slitter, wide and narrow widths cut at the same time are of uniform tension. A roll slit and rewound 1" wide and 48" diameter can be handled without danger of spinning. At very little additional cost per ton paper mills equipped with this Slitter can furnish their customers with paper or board slit and rewound from 1" width and up. Made in three widths: 48"—60"—72".

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Manufacturers of
AUTOMATIC MACHINERY FOR PAPER BOXES AND ROTARY PAPER CUTTING MACHINERY

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A FIRST REQUISITE

in

Paper Making

Large Production
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Prompt Deliveries
Purity 99½%

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Extra Strong Kraft

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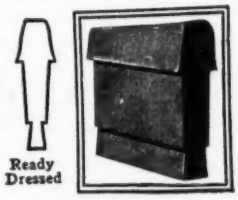
THE MOST ECONOMICAL FILLING THAT CAN BE PUT IN A MORTISE WHEEL



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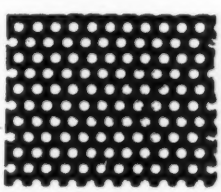
For Pulp and Paper Mills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Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 3, 1932.

BLANC FIXE.—The blanc fixe market continues moderately active. Prices are holding to previously quoted levels. The pulp is selling at from $42.00 to $45.00 per ton, in bulk; while the powder is offered at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Trading in the bleaching powder market is moderately active. The contract movement is fairly satisfactory. Prices are holding to schedule. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is listless. Domestic standard ground is quoted at 4¾ cents and finely ground at 6 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Steadiness prevails in the caustic soda market. Prices are holding to schedule. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is irregular. Prices are affected by foreign exchange fluctuations. Imported china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Conditions in the chlorine market are practically unchanged. Shipments against contract are moving in moderate volume. Prices are steady. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly softer. The grades of gum rosin used in the paper mills are now quoted at from $3.30 to $3.45 per 280 pounds, in barrels, at works. Wood rosin is still selling at $2.50 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Demand for salt cake is somewhat restricted at present. Prices are steady. Salt cake is still quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works. Imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is rather quiet. Contract shipments are moving slowly. Prices are holding to schedule. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—The starch market is exhibiting a fairly strong undertone. Shipments against contract are going forward at a steady pace. Special paper making starch is still quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is fairly persistent, considering prevailing business conditions. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues quiet. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Most of the business transacted in the talc market during the past week was routine. Prices are unchanged. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	5.00	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.65	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.50	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¾	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —

(Delivered New York)

News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@42.00
Kraft—		
No. 1 Domestic	4.75	@ 6.00
No. 2 Domestic	3.25	@ 4.00
Southern	3.25	@ 4.00
Imported	3.50	@ 4.30
Boards—per ton—		
News	22.50	@25.00
Straw	34.50	@45.00
Chip	22.50	@25.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	26.00	@28.00
Sgl. Mla. Ll. Chip	35.00	@37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	19.00	@21.00
Dry	21.00	@22.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.40	@ 1.60
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—		
Bleached	2.10	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.50	@ 2.75

(Delivered Paper Mills)

Soda Bleached	2.25	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.00	@ 4.25
New White, No. 2	3.00	@ 3.25
Silesias No. 1	3.75	@ 4.00
New Unbleached	5.50	@ 6.00
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.50	@ 1.75
Washables	1.15	@ 1.40
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.25	@ 3.50
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.25	@ 4.50
New Light Oxfords	3.75	@ 4.00
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.15	@ 1.25
Wool Tares, light	.80	@ .85
Wool Tares, heavy	.80	@ .85
Bright Bagging	.75	@ .80
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	1.60	@ 1.70
Ordinary Hard White No. 1	1.30	@ 1.40
Hard White No. 2	1.25	@ 1.30
Soft White No. 1	1.25	@ 1.35
Flat Stock—		
Stitchless	.50	@ .60
Overissue Mag	.50	@ .60
Solid Flat Book	.45	@ .50
Crumpled No. 1	.35	@ .40
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.45	@ .55
New B. B. Chips	.20	@ .25
Manilas—		
New Env. Cut	1.25	@ 1.35
New Cuttings	1.00	@ 1.05
Extra No. 1 old	.80	@ .90
Print	.35	@ .40
Bogus Wrapper	.30	@ .35
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.60	@ .70
News—		
No. 1 White News	1.15	@ 1.20
Strictly Overissue	.35	@ .40
Strictly Folded	.23	@ .28
No. 1 Mixed Paper	.15	@ .20

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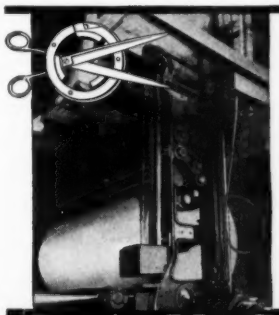

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Pl—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¾
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.50	@	5.00
Southern Kraft	3.25	@	—
No. 2 Kraft	3.25	@	—
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.07	@	.07¾
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.75	@	1.80
No. 1 Hard White	1.55	@	1.60
No. 1 Soft White	1.20	@	1.35
Ledger & Writings	.55	@	.65
Solid Books	.35	@	.50
Blanks	1.00	@	1.15
Kraits	.95	@	1.00
New Kraft Cuts	1.40	@	1.50
Manila Env. Cuts	1.40	@	1.50
Ex. No. 1 Manila	1.00	@	1.10
Print Manila	.35	@	.40
Overissue News	.45	@	.55
Old Newspapers—			
No. 1	.30	@	.35
No. 2	.20	@	.25
Mixed Papers—			
No. 1	.15	@	.25
No. 2	.10	@	.15
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	22.00	@	25.00
Chip Board	21.00	@	23.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roonng Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.80	@	1.90
No. 2 Hard White	1.60	@	1.70
No. 1 Soft White	1.50	@	1.65
No. 2 Soft White	1.30	@	1.45
No. 1 Mixed	.40	@	.50
No. 2 Mixed	.35	@	.40
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.00	@	1.15
No. 1 Old Manila	.90	@	1.00
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.85	@	.95
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board. Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.35	@	.40
Old Newspaper	.20	@	.25

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¾
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	.03¼	@	.03½
(F. o. b. Boston)			
Southern Kraft	.03	@	.03¼
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	—	@	52.50
Straw Board, rolls	.009	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—			
Binder	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.40
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.90	@	1.10
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	—	@	.45
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.70
White Blank News	1.10	@	1.20
Kraft No. 1	.70	@	.80
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixed String	—	@	.32½
Jute Rope	—	@	.75
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	—	@	.79
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.60	@	.75
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	.65
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.80	@	1.00
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¾
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.03
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.85
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10½	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

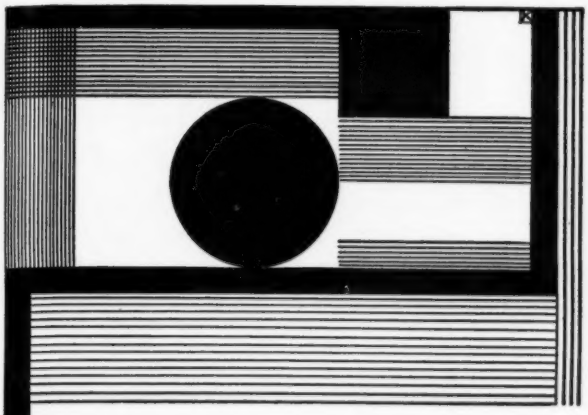
Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¾



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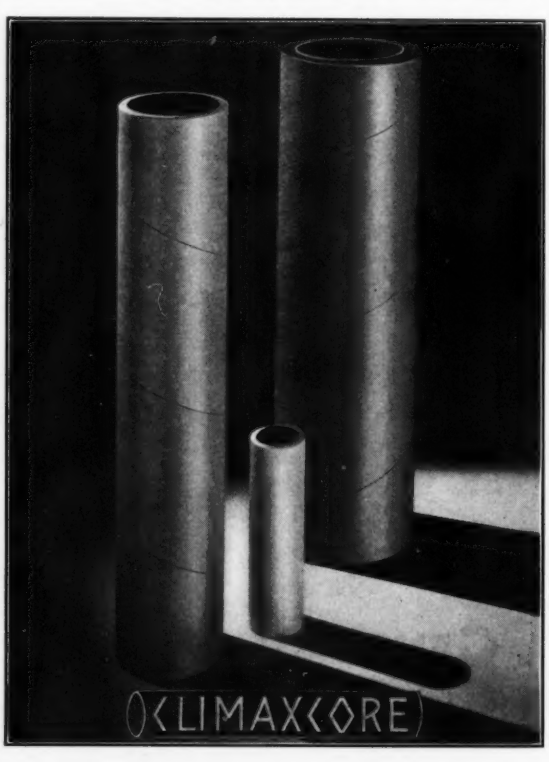
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